

IAP13 Rec'd PCT/PTO 30 JAN 2007

CERTIFICATE OF "EXPRESS MAILING"

"EXPRESS MAIL" Mailing Label Number: EL 753212757 US

Deposited: January 30, 2007

I hereby certify that this and the enclosed paper(s) and/or fee(s) is/are being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated above and is addressed to: Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, VA 22313-1450.

Patent Application No. : 10/551,661
Filing Date : September 30, 2005
Inventor : Lewis Cheng et al
Atty. Docket No. : 102907-437-NP
Int'l Appl. No. : PCT/US2004/10027
Int. Appl. Filing Date : April 01, 2004
Title : ADVANCED VERSATILE LAYOUT AND RENDERING
SYSTEM
I. A. Filing Date : 04/01/2004
Priority Date : 04/01/2003

Submitted herewith are the following items for filing in the above-captioned application:

1. This Certificate of Express Mailing (No. EL 753212757 US) (2 page);
2. Renewed Petition Under 37 CFR 1.47(a) (5 pages);
3. Exhibit A-1 (4 pages);
4. Exhibit A-2 (3 pages);
5. Exhibit B (9 pages);
6. Exhibit C (4 pages);
7. Exhibit C-1 (71 pages);
8. Exhibit C-2 (3 pages);
9. Exhibit C-3 (3 pages);
10. Exhibit C-4 (3 pages);

11. Exhibit C-5 (3 pages);
12. Exhibit D (7 pages); and
13. Return Receipt Postcard.

TOTAL PAGES IN THIS SUBMISSION: 117 pages + postcard

Robert P. Udal

Robert P. Udal

CERTIFICATE OF "EXPRESS MAILING"

"EXPRESS MAIL" Mailing Label Number: EL 753212 757 US

Deposited: January 30, 2007

I hereby certify that this and the enclosed paper(s) and/or fee(s) is/are being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated above and is addressed to: Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, VA 22313-1450.

Robert Udal
Robert P. Udal

Patent Application No. : 10/551,661
Filing Date : September 30, 2005
Inventor : Lewis Cheng et al
Atty. Docket No. : 102907-437-NP
Int'l Appl. No. : PCT/US2004/10027
Int. Appl. Filing Date : April 01, 2004
Title : ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM
I. A. Filing Date : 04/01/2004
Priority Date : 04/01/2003

RENEWED PETITION UNDER 37 CFR § 1.47(a) TO FILE ON BEHALF OF NON-SIGNING INVENTOR(S)

Applicant, Planetii, submit this Renewed Petition Under 37 CFR § 1.47(a) for Filing on Behalf of Non-Signing Inventor(s) in response to the Decision On "Petition Under 37 CFR § 1.47(a) for Filing on Behalf of Non-Signing Inventors" (hereinafter "Petition") mailed on 22 December 2006 from the U.S. Designated/Elected Office (DO/EO/US). See **Exhibit A-1** for a copy of the Decision (hereinafter "First Decision").

Background

On 30 September 2005, Applicant, PLANETii Inc. (hereinafter “PLANETii”), doing business at 8/F, Enterprise Square 3, 39 Wang Chiu Road, Kowloon Bay, Hong Kong, filed with the United States Patent And Trademark Office (“USPTO”), *inter alia*, basic national fee and a Transmittal Letter to The United States Designated/Elected Office (DO/EO/US) concerning a Filing Under 35 USC 371, naming Lewis Cheng, Joseph Fusion, and Kyung Lee as co-inventors. No an oath or declaration was filed.

On 26 May 2006, the U.S. Designated/Elected Office (DO/EO/US) mailed a Notification of Missing Requirements requesting the (1) oath or declaration and, (2) the surcharge set forth in 37 CFR 1.492(h) for small entity in compliance with 37 CFR 1.27. See **Exhibit A-2** for a copy of the Notification of Missing Requirements.

On 17 August 2006, Applicant, Planetii, filed a Petition Under 37 CFR § 1.47(a) for Filing on Behalf of Non-Signing Inventors (“Petition”), in the above-referenced application in response to the Notification of Missing Requirements Under 371 In the United States Designated/Elected Office.

On 22 December 2006, the United States Designated/Elected Office issued a first Decision on the Petition under 37 CFR 1.47(a), dismissing the Applicant’s Petition for not satisfying the requirement for factual proof that supports Joseph Fusion’s refusal to execute the application papers. The Decision stated that “the showing of record is also consistent with the conclusion that Joseph Fusion simply moved to a new address and changed jobs.”

In response to the Decision (**Exhibit A-1**), Applicant hereby renews its petition to the Commissioner to accept the filing of the above-captioned application by it, as the party to which the invention disclosed and claimed in this application rightfully belongs, and on behalf of and as agent of the non-signing inventor Joseph Fusion. In support of this Renewed Petition and attached hereto as **Exhibit B** are copies of a combined Declaration and Power of Attorney signed by Lewis Cheng, and an addendum executed by Lewis Cheng, Cofounder and Partner of the 37 CFR 1.47(a) Applicant, PLANETii Inc.

Also submitted in support of this Renewed Petition and attached hereto as **Exhibit C** is a Declaration by Patrice A. King, the registered patent attorney that filed the above-captioned application when she was employed at Goodwin Procter LLP, to provide proof of the pertinent facts and to describe the efforts made to obtain Mr. Joseph Fusion's signature.

Also submitted are Patent Assignment papers signed by Kyung Lee and Lewis Cheng, but not Joseph Fusion, and an employment agreement signed by Joseph Fusion. A copy of the executed Patent Assignment and a copy of the executed employment agreement are hereto attached as **Exhibit D**. The signed Patent Assignment and employment agreement support the statement that the 37 CFR 1.47(a) Applicant, PLANETii, is the owner of the invention disclosed in the above-noted application and therefore has sufficient proprietary interest in this application for patent.

As noted above the Declaration of Patrice A. King provides firsthand statements with exhibits that describe the efforts made to obtain Joseph Fusion's signature. This Declaration provides proof that a FedEx Package, containing copies of the Declaration of Inventorship, the Patent assignment and the above-referenced international application PCT/US2004/10027 in the form of PCT Publication No. WO 2004/090739, and instructions for execution of the application papers, was **successfully Delivered on 19 September 2005**, at 1:18 p.m., to 214 NE 29th Ave, Portland, OR 97232-3204, Mr. Joseph Fusion's last known address.

As of the mailing date of this Renewed Petition neither the Applicant, Planetii, nor the Applicant's legal representative has received executed application papers from Mr. Joseph Fusion. Therefore to preserve the rights of the parties or to prevent irreparable damage it is necessary for the Applicant to file the above-noted application on behalf of the non-signing inventor pursuant to 37 CFR § 1.47(a). It is unlikely that Mr. Joseph Fusion will send executed documents to the Applicant before or after the expiration date for response to the Notification of Missing Requirements.

Should the Office require or consider it advisable that further action by or a personal discussion with the Applicant might be helpful in advancing this case, the Office is invited to telephone the undersigned.

The Commissioner is authorized to charge all required fees, including the petition fee, any additional fees, or credit any overpayment to Deposit Account 06-0923.

Respectfully submitted for Applicant,

Robert Udal

Robert P. Udal (Reg. No. 56,608)
Richard I. Samuel, Esq. (Reg. No. 24,435)
GOODWIN PROCTER LLP
599 Lexington Avenue
New York, New York 10022
212- 813-8840

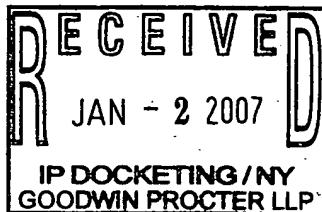
Exhibit A-1



UNITED STATES PATENT AND TRADEMARK OFFICE

22 DEC 2006

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov



GOODWIN PROCTER LLP
599 Lexington Avenue
New York, NY 10022

In re Application of
CHENG et al.
Application No.: 10/551,661
PCT No.: PCT/US04/10027
Int. Filing: 01 April 2004
Priority Date: 01 April 2003
Attorney Docket No.: 102907-437-NP
For: ADVANCED VERSATILE LAYOUT AND
RENDERING SYSTEM, METHOD AND
PRODUCT

DECISION ON PETITION
UNDER 37 CFR 1.47(a)

This decision is in response to applicants' "Petition under 37 CFR 1.47(a) For Filing on Behalf of Non-Signing Inventor(s)" filed 17 August 2006 to accept the application without the signature of joint inventor, Joseph Fusion. The \$200 petition fee has been submitted.

BACKGROUND

On 01 April 2004, applicants filed international application PCT/US04/10027, which claimed a priority date 01 April 2003. Pursuant to 37 CFR 1.495, the period for paying the basic national fee in the United States expired 30 months from the priority date, 01 October 2005.

On 30 September 2005, applicants filed a transmittal for entry into the national stage in the United States, which accompanied by, inter alia: the requisite basic national fee as required by 35 U.S.C. 371(c)(1); a copy of the international application.

On 26 May 2006, the United States Designated/Elected Office mailed a Notification of Missing Requirements under 35 U.S.C. 371 (Form PCT/DO/EO/905) indicating that an oath or declaration in compliance with 37 CFR 1.497(a) and (b) must be filed. The notification set a two-month time limit in which to respond.

On 17 August 2006, applicants filed the present petition under 37 CFR 1.47(a) and a petition for an one-month extension of time.

DISCUSSION

A petition under 37 CFR 1.47(a) must be accompanied by (1) the fee under 37 CFR 1.17(h), (2) factual proof that the missing joint inventor refuses to execute the application or cannot be reached after diligent effort, (3) a statement of the last known address of the missing inventor, and (4) an oath or declaration by each 37 CFR 1.47(a) applicant on his or her own behalf and behalf of the non-signing joint inventor. Items (1) - (4) have been satisfied.

Regarding item (2) above, Section 409.03(d) of the Manual of Patent Examining Procedure (M.P.E.P.), **Proof of Unavailability or Refusal**, states, in part:

Where inability to find or reach a nonsigning inventor "after diligent effort" is the reason for filing under 37 CFR 1.47, an affidavit or declaration of facts should be submitted that fully describes the exact facts which are relied on to establish that a diligent effort was made.

The fact that a nonsigning inventor is on vacation or out of town and is therefore temporarily unavailable to sign the declaration is not an acceptable reason for filing under 37 CFR 1.47. Such a petition will be dismissed as inappropriate.

The affidavit or declaration of facts must be signed, where at all possible, by a person having firsthand knowledge of the facts recited therein. Statements based on hearsay will not normally be accepted.

Copies of documentary evidence such as certified mail return receipt, cover letter of instructions, telegrams, etc., that support a finding that the nonsigning inventor could not be found or reached should be made part of the affidavit or declaration. It is important that the affidavit or declaration contain statements of fact as opposed to conclusions.

Where a refusal of the inventor to sign the application papers is alleged, the circumstances of this refusal must be specified in an affidavit or declaration by the person to whom the refusal was made. Statements by a party not present when an oral refusal is made will not be accepted.

Petitioner states that Joseph Fusion has refused to execute the application. A review of the present petition and the accompanying papers reveals that applicants have not satisfied item (2) above, in that, the showing of record is also consistent with the conclusion that Joseph Fusion simply moved to a new address and changed jobs. As such the 37 CFR 1.47 applicant would be obligated to make a diligent effort to locate the non-signing inventor. It is noted that petitioner fails to include evidence to demonstrate that the materials were actually received by the nonsigning inventor at his last known address.

Regarding item (4) above, only Lewis Chen executed the declaration on Joseph Fusion's behalf.

For the above reasons, it would not be appropriate to accept this application without the signature of Joseph Fusion at this time.

CONCLUSION

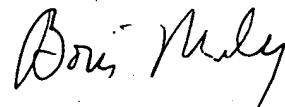
For reasons above, the petition under 37 CFR 1.47(a) is DISMISSED without prejudice.

A proper response must be filed within TWO (2) MONTHS from the mail date of this decision. A proper response is either oath or declaration in compliance with 37 CFR 1.497 executed by Joseph Fusion, or a renewed petition under 37 CFR 1.47(a) overcoming the deficiencies indicated above. Extensions of term under 37 CFR 1.136(a) are available. Failure to timely file the proper response will result in ABANDONMENT. Any reconsideration request should include a cover letter entitled "Renewed Petition Under 37 CFR 1.47(a)." No additional petition fee is required.

Any further correspondence with respect to this matter should be addressed to: Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, Virginia 22313-1450, with the contents of the letter marked to the attention of the Office of PCT Legal Administration.



Peter Kim
PCT Legal Administration Detailee
Tel.: 571-272-6095
Facsimile: 571-273-0459



Boris Milef
PCT Legal Examiner
Office of PCT Legal Administration

Exhibit A-2



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/551,661	Lewis Cheng	102907-437-NP
INTERNATIONAL APPLICATION NO.		
PCT/US04/10027		
LA. FILING DATE	PRIORITY DATE	
04/01/2004	04/01/2003	

Patrice A King
 GOODWIN PROCTER
 103 Eisenhower Parkway
 Roseland, NJ 07068

CONFIRMATION NO. 4597

371 FORMALITIES LETTER



OC000000018956428

Date Mailed: 05/26/2006

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Indication of Small Entity Status
- Copy of the International Application filed on 09/30/2005
- Copy of the International Search Report filed on 09/30/2005
- U.S. Basic National Fees filed on 09/30/2005
- Priority Documents filed on 09/30/2005

The applicant needs to satisfy supplemental fees problems indicated below.

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.492(h) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fees required for this application is **\$65** for a Small Entity:

- \$65 Surcharge.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION,

WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

SHAKEEL AHMED

Telephone: (703) 308-9140 EXT 208

PART 1 - ATTORNEY/APPLICANT COPY

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/551,661	PCT/US04/10027	102907-437-NP

FORM PCT/DO/EO/905 (371 Formalities Notice)

Exhibit B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

First Named Inventor: Lewis Cheng

Examiner:

Serial No.: 10/551,661

Filed: September 30, 2005

Group Art Unit:

Title: Advanced Versatile Layout and Rendering System

Docket No.: 102907-437NP

**DECLARATION AND POWER OF ATTORNEY
FOR UTILITY AND PLANT PATENT APPLICATION**

This Declaration is

- Submitted with Initial Filing.
 Submitted after Initial Filing (surcharge under 37 C.F.R. 1.16(e) required).

As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention as entitled above, the specification of which

- is attached hereto
 was filed on 09/30/2005 as United States Application No. 10/551,661 or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	Certified Copy Attached? NO
US 2004/10027	PCT	4/1/2004	[]	[]	[]
			[]	[]	[]

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

Application Serial Number(s)	Filing Date
60/459,329	4/4/2003

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112. I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application

Application Serial Number(s)	Filing Date	Status (pending, patented, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

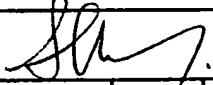
POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

- Practitioners at Customer Number 24964 → [Customer Number Bar Code Label]
 Practitioner(s) named below:

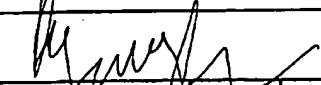
Name	Registration Number

- Please direct all future correspondence and telephone calls to:

<i>Attorney Name and Registration No.</i>	Richard I. Samuel, Esq. (Reg. No. 24,435)
<i>Firm Name</i>	Goodwin Procter LLP
<i>Address</i>	599 Lexington Ave
<i>City, State, Zip</i>	New York, NY 10022
<i>Telephone</i>	(212)-459-7021

Name of Inventor	[] A petition has been filed for this unsigned inventor						
Given Name (first and middle)	Lewis		Family Name or Surname	Cheng			
Inventor's Signature					Date	04/28/05	
Residence: City	Mountain View	State	CA	Country	USA	Citizenship	Canada
Mailing Address	2400 W. El Camino Real, #715, Mountain View, CA 94040						
City	Mountain View	State	CA	ZIP	94040	Country	USA

Name of Inventor		[] A petition has been filed for this unsigned inventor					
<i>Given Name (first and middle)</i>	Joseph		<i>Family Name or Surname</i>	Fusion			
<i>Inventor's Signature</i>					<i>Date</i>		
<i>Residence: City</i>	Portland	<i>State</i>	OR	<i>Country</i>	USA	<i>Citizenship</i>	USA
<i>Mailing Address</i>	214 NE 29th Ave., Portland, OR 97232						
<i>City</i>	Portland	<i>State</i>	OR	<i>ZIP</i>	97232	<i>Country</i>	USA

Name of Inventor		[] A petition has been filed for this unsigned inventor					
<i>Given Name (first and middle)</i>	Kyung		<i>Family Name or Surname</i>	Lee			
<i>Inventor's Signature</i>				<i>Date</i>	4/26/05		
<i>Residence: City</i>	Fort Lee	<i>State</i>	NJ	<i>Country</i>	USA	<i>Citizenship</i>	USA
<i>Mailing Address</i>	1275 5th St. #6R, Fort Lee, NJ 07024						
<i>City</i>	Fort Lee	<i>State</i>	NJ	<i>ZIP</i>	07024	<i>Country</i>	USA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : Not yet assigned
First Named Inventor : Lewis Cheng et al.
Attorney Docket No. : 102907-437NP
Int'l Appl. No. : PCT/US2004/10027
I.A. Filing Date : 04/01/2004
Priority Date : 04/01/2003

**ADDED PAGE TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR
SIGNATURE BY PERSON WITH SUFFICIENT PROPRIETARY INTEREST WHERE
AN INVENTOR IS UNAVAILABLE TO SIGN AND ON BEHALF OF ALL THE
INVENTORS WHO REFUSE TO SIGN OR CANNOT BE REACHED (37 CFR 1.47(B))**

I, Lewis Cheng, hereby declare as follows:

1. I am a citizen of Canada currently residing at #34B, 3 Seymour Road, Mid Levels, Hong Kong.
2. I am Cofounder and Partner of, and authorized by the following juristic entity with sufficient proprietary interest in the above-identified application:

Planetii USA, Inc.
2311 City Place
Edgewater, NJ 07020

USA (hereinafter "Planetii")

3. By virtue of Planetii's proprietary interest, I sign this Declaration on behalf of, and as agent for the following non-signing inventor who either refuses to sign or cannot be found or located. The name and last known address of the non-signing inventor is:

Joseph Fusion
214 NE 29th Avenue
Portland, OR 97232
USA

4. Upon information and belief, I aver those facts that the inventor is required to state, 37 CFR 1.64(b).
5. To preserve the rights of the parties and to prevent irreparable damage, it is now necessary for Planetii to make application on behalf of and as agent for the above nonsigning inventor pursuant to 37 C.F.R. § 1.47(b) because the filing date of this application is required to make a claim of priority to International Application Number PCT/US04/10027, filed April 1, 2004, entitled "Advanced Versatile Layout and Rendering System," which claims priority to U.S. Patent Application 60/459,329, filed April 1, 2003.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such false statements may jeopardize the validity of this document and application to which it relates.

Date: September 27, 2005



LEWIS CHENG

Exhibit C

Certificate of Express Mail

I hereby certify that this and the enclosed paper(s) and/or fee(s) is/are being deposited with the United States Postal Service as "Express Mail Post Office to Addressee" service under 37 CFR § 1.10 on the date indicated below and is addressed to: Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, VA 22313-1450.

Robert P. Udal

"EXPRESS MAIL" Label No.

Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. : 10/551,661
Filing Date : September 30, 2005
Inventor : Lewis Cheng et al
Atty. Docket No. : 102907-437-NP
Int'l Appl. No. : PCT/US2004/10027
Int. Appl. Filing Date : April 01, 2004
Title : ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM
I. A. Filing Date : 04/01/2004
Priority Date : 04/01/2003

Mail Stop PCT
Commissioner for Patents
Office of PCT Legal Administration
P.O. Box 1450
Alexandria, VA 22313-1450

**DECLARATION PATRICE A. KING IN SUPPORT OF RENEWED PETITION FOR
FILING ON BEHALF OF NON-SIGNING INVENTOR(S)**

I, Patrice A. King, declare as follows:

1. I am the registered patent attorney that filed the above-referenced patent application when I was an employee of Goodwin Procter LLP, attorneys of which are the Applicant's legal representative of record in this case.

2. This declaration details factual accounts of my efforts to reach and deliver application papers to the Non-signing Joint Inventor, Mr. Joseph Fusion.

3. On 12 April 2005 I sent electronic copies of Declaration of Inventorship, Patent Assignment and PCT Publication No. WO 2004090739, a published copy of the above-referenced international application No. PCT/US2004/10027, via e-mail to Mr. Joseph Fusion at his e-mail address: jfusion@monkey.org. Copies of the printout of the sent e-mail and application papers are hereto attached as **Exhibit C-1**.

4. In the e-mail I instructed Mr. Fusion to review the published application, Declaration of Inventorship and the Patent Assignment and to execute the Declaration of Inventorship and the Patent Assignment, and to return a copy of the executed documents to our offices by e-mail, facsimile and/or mail.

5. On 13 April 2005 I sent, via Federal Express, to Mr. Fusion hard copies of the Declaration of Inventorship, Patent Assignment and PCT Publication No. WO 2004090739 along with a letter instructing Mr. Fusion to review the documents and to execute the Declaration of Inventorship and the Patent Assignment and to return the executed documents to our offices by e-mail, facsimile and/or mail. Copies of the FedEx Label I created for the Federal Express mail and the letter I wrote for Mr. Fusion are attached hereto as **Exhibit C-2**.

6. On 17 May 2005 I again e-mailed electronic copies of the Declaration of Inventorship, the Patent Assignment and the PCT Publication No. WO 2004090739, a published copy of the above-referenced international application No. PCT/US2004/10027, to Mr. Joseph Fusion at his e-mail address: jfusion@monkey.org. A copy of the printout of the sent e-mail is attached hereto as **Exhibit C-3**.

7. For a third time, on 19 September 2005 I again e-mailed electronic copies of the Declaration of Inventorship, the Patent Assignment and the PCT Publication No. WO 2004090739, a published copy of the above-referenced international application No. PCT/US2004/10027, to Mr. Joseph Fusion at his e-mail address: jfusion@monkey.org. A copy of the printout of the sent e-mail is attached hereto as **Exhibit C-4**.

8. Also, on 15 September 2005 I sent to Mr. Joseph Fusion a second FedEx Package, once again, containing copies of the Declaration of Inventorship, the Patent Assignment and the PCT Publication No. WO 2004090739, along with instructions for him to review the application papers and to execute the Declaration of Inventorship and the Patent Assignment and to return the executed documents to our offices by e-mail, facsimile and/or mail. Attached hereto as **Exhibit C-5** are copies of the FedEx label I prepared for the FedEx Package and Detailed Shipment Tracking Results indicating the package was successfully Delivered on **19 September 2005 at 1:18 p.m.**

9. In each of the five instances I enumerated above I never received executed application papers from Mr. Fusion.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001 and that such false statements may jeopardize the validity of this document and application to which it relates.

Date:

1.10.2007

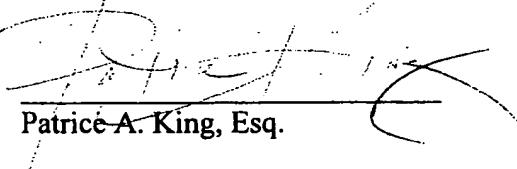

Patrice A. King, Esq.

Exhibit C-1

King, Patrice A

From: King, Patrice A
Sent: Tuesday, April 12, 2005 6:04 PM
To: 'jfusion@monkey.org'
Cc: 'Lewis Cheng'
Subject: Planetii - US Patent Application



WO2004090739A1.4405042_1.doc (92 KB) Pii Assignment
pdf (1 MB) Rights-2.doc (2...

RETURN RECEIPT REQUESTED

Via E-Mail and Federal Express

US Patent Application for ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM
Appl. No.: US04/10027

Dear Joe:

Pursuant to your conversation with Lewis, attached please find for your review and execution a "Declaration of Inventorship" and a "Patent Assignment" for the above identified patent case. Under the United States patent laws, each inventor must sign a statutory oath or declaration of inventorship attesting that they are the first and original inventors of the claimed inventions. The patent assignment will effectuate the transfer of your rights in the invention to Planetii as set forth in your employment letter agreement with Planetii. For your convenience, I have also attached a copy of the published application for your review.

Please return a copy of the executed documents to our offices by e-mail or facsimile, and the original document by mail. If you have any questions, please do not hesitate to contact me.

Kindly acknowledge receipt of this e-mail.

Regards,

Patrice

Patrice Andrea King, Esq.
Associate Attorney
Goodwin Procter LLP
103 Eisenhower Parkway
Roseland, New Jersey 07068
Direct Dial: 973.994.7896
General: 973.992.1990
Fax: 973.992.4643
E-mail: pking@goodwinprocter.com
URL: www.goodwinprocter.com

ASSIGNMENT OF RIGHTS: PATENT APPLICATION

WHEREAS, WE, Lewis Cheng, a citizen of Canada, and Joseph Fusion and Kyung Lee, each citizens of the United States, as **ASSIGNORS**, residing respectively at: 2400 W. El Camino Real, #715, Mountain View, CA 94040; 214 NE 29th Ave., Portland, OR 97232; and 1275 15th St. #6R, Fort Lee, NJ 07024; are the inventors of the invention entitled, **Advanced Versatile Layout and Rendering System**, for which an application for a United States Patent was filed on April 1, 2003, Serial no. 60/459329, and for which a PCT application was filed on April 1, 2004, Serial No. PCT/US04/10027 and;

WHEREAS, Planetii USA, Inc., doing business at 2400 W. El Camino Real #715, Mountain View, CA 94040, **ASSIGNEE** is desirous of obtaining the entire right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said **ASSIGNORS**, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said **ASSIGNEE**, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND WE HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said **ASSIGNEE**, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree that we have full right to convey the entire interest herein assigned, and that we have not executed, or will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to the said **ASSIGNEE**, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said **ASSIGNEE**, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

IN TESTIMONY WHEREOF, We hereunto set our hands and seals the day and year set opposite our respective signatures.

Date: _____

Lewis Cheng

Date: _____

Joseph Fusion

Date: _____

Kyung Lee

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

First Named Lewis Cheng

Inventor:

Serial No.:

Filed:

Title: Advanced Versatile Layout and
Rendering System

Docket No.: 102907-437NP

Examiner:

Group Art Unit:

DECLARATION AND POWER OF ATTORNEY
FOR UTILITY AND PLANT PATENT APPLICATION

This Declaration is

- Submitted with Initial Filing.
- Submitted after Initial Filing (surcharge under 37 C.F.R. 1.16(e) required).

As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention as entitled above, the specification of which

- is attached hereto
- was filed on _____ as United States Application No. _____ or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			<input type="checkbox"/>	<input type="checkbox"/> YES	<input type="checkbox"/> NO
US 2004/010027	PCT	4/1/2004	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

Application Serial Number(s)	Filing Date
60/459,329	4/4/2003

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112. I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application

Application Serial Number(s)	Filing Date	Status (pending, patented, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Practitioners at Customer Number **24964** → [Customer Number Bar Code Label]

Practitioner(s) named below:

Name	Registration Number

Please direct all future correspondence and telephone calls to:

<i>Attorney Name and Registration No.</i>	Richard I. Samuel, Esq.
<i>Firm Name</i>	Goodwin Procter LLP
<i>Address</i>	Lexington Avenue
<i>City, State, Zip</i>	New York, NY 10022
<i>Telephone</i>	(212) 813-8800

Name of Sole or First Inventor		[] A petition has been filed for this unsigned inventor				
<i>Given Name (first and middle)</i>	Lewis		<i>Family Name or Surname</i>	Cheng		
<i>Inventor's Signature</i>				<i>Date</i>		
<i>Residence: City</i>		<i>State</i>		<i>Country</i>		<i>Citizenship</i>
<i>Mailing Address</i>						
<i>City</i>		<i>State</i>		<i>ZIP</i>		<i>Country</i>

Name of Sole or First Inventor		[] A petition has been filed for this unsigned inventor				
<i>Given Name (first and middle)</i>	Joe		<i>Family Name or Surname</i>	Fusion		
<i>Inventor's Signature</i>				<i>Date</i>		
<i>Residence: City</i>		<i>State</i>		<i>Country</i>		<i>Citizenship</i>
<i>Mailing Address</i>						
<i>City</i>		<i>State</i>		<i>ZIP</i>		<i>Country</i>

Name of Sole or First Inventor		[] A petition has been filed for this unsigned inventor				
<i>Given Name (first and middle)</i>	Kyung		<i>Family Name or Surname</i>	Lee		
<i>Inventor's Signature</i>				<i>Date</i>		
<i>Residence: City</i>		<i>State</i>		<i>Country</i>		<i>Citizenship</i>
<i>Mailing Address</i>						
<i>City</i>		<i>State</i>		<i>ZIP</i>		<i>Country</i>

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

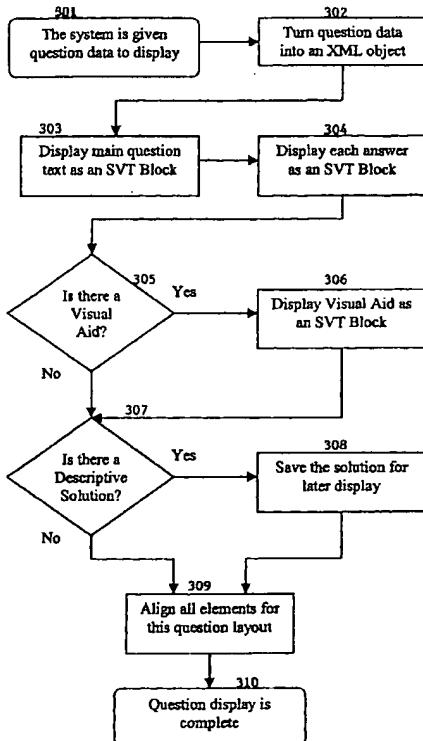
(10) International Publication Number
WO 2004/090739 A1

- (51) International Patent Classification⁷: G06F 15/00, 17/30
- (74) Agents: SAMUEL, Richard, I. et al.; Goodwin Procter LLP, 103 Eisenhower Parkway, Roseland, NJ 07068 (US).
- (21) International Application Number: PCT/US2004/010027
- (22) International Filing Date: 1 April 2004 (01.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/459,329 1 April 2003 (01.04.2003) US
- (71) Applicant (for all designated States except US): PLAN-ETII USA INC. [US/US]; Suite 305, 560 South Winchester Boulevard, San Jose, CA 95128 (US).
- (72) Inventors: FUSION, Joe; Portland, OR 97210-3223 (US). KYUNG, Lee; San Jose, CA 95126 (US). CHENG, Lewis; San Jose, CA 95126 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, ZW).

{Continued on next page}

(54) Title: ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM, METHOD AND PRODUCT

Question Display Flowchart



(57) Abstract: Provided herein is a system, method and computer program product for effectively arranging and rendering multimedia information using for example, Macromedia's FlashTM technology, the Extensible Markup Language (XML) language and the Mathematical Markup Language (MathML). The invention utilizes question data (301), possible visual aids (305), possible descriptive solutions (307), and element alignment (309).



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

1 **TITLE**

2 Advanced Versatile Layout and Rendering System, Method and Product

3.

4 **CLAIM OF PRIORITY/CROSS REFERENCE OF RELATED**5 **APPLICATION(S)**

6 This application claims the benefit of priority of United States Provisional

7 Application Number 60/459,329, filed April 1, 2003, entitled "Advanced

8 Versatile Layout and Rendering System," hereby incorporated in its entirety

9 herein.

10

11 **STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR**12 **DEVELOPMENT**

13 Not applicable.

14

15 **COPYRIGHT/TRADEMARK STATEMENT**

16 A portion of the disclosure of this patent document may contain material which is

17 subject to copyright and/or trademark protection. The copyright/trademark owner

18 has no objection to the facsimile reproduction by anyone of the patent document

19 or the patent disclosure, as it appears in the Patent Office patent files or records,

20 but otherwise reserves all copyrights and trademarks.

1 BACKGROUND

2 1. Field of the Invention

3 The present invention relates generally to graphical rendering systems and more
4 particularly to a system, apparatus, process and article of manufacture for
5 providing improved interactive, graphical applications using, for example,
6 Macromedia Flash™ technology available from Macromedia Inc., the Extensible
7 Markup Language (XML) language and the Mathematical Markup Language
8 (MathML).

9

10 Details of Macromedia Flash™ technology, including preferred software and
11 hardware environments, can be found in various sources such as: Macromedia's
12 website, <<http://www.macromedia.com>>, conference notes from FlashForward
13 and Macromedia Ucon; in several books published, for example by Friends of Ed,
14 O'Reilly & Co. and Macromedia; articles and user forums on websites such as
15 We're Here, FlashKit, UltraShock, and Figleaf's FlashCoders.

16

17 Details of XML and MathML, including preferred software and hardware
18 environments, can also be found in various sources including the W3C's website,
19 <<http://www.w3c.org>>. Specifically, the current MathML specification entitled,

1 "Mathematical Markup Language (MathML) Version 2.0," is located at

2 <<http://www.w3.org/TR/2001/REC-MathML2-20010221>>.

3

4 Each of the above references and any additional reference provided herein are

5 incorporated in its entirety herein.

6

7 2. Description of Related Art

8

9 Currently, multimedia information comprising text, graphics, mathematical
10 expressions, symbols and other indicia (collectively, referred to as "mathematical
11 expressions"), etc., is developed and presented as follows:

12

13 Current web browsers, e.g., Internet Explorer™, Netscape™, etc., display stylized
14 text and graphics/images however, only a few lesser known web browsers contain
15 native MathML support, thereby limiting use.

16

17 Another technique involves manually generating the entire multimedia layout
18 using a graphical creation and rendering program such as Macromedia Flash
19 MX™ development tool by Macromedia, Inc. However, manual layout is acutely

1 impractical due to high development costs and the severe constraints placed on
2 maintainability, scalability and portability.

3

4 The Macromedia Flash Player™ and its associated Flash Plug-in™ display
5 stylized text that is formatted as a Hypertext Markup Language (HTML) object.
6 However, such an arrangement offers no integration with graphics or
7 mathematical expressions.

8

9 Existing software products display mathematical expressions by rendering
10 MathML objects to a graphical format such as the Joint Photographic Experts
11 Group (JPEG) format. However, to be effective the graphics must be displayed
12 inline with text. Further pre-rendering the graphics or rendering them
13 dynamically to address the preceding requirement is costly in performance,
14 storage and bandwidth, as well as licensing fees.

15

16 The present invention solves the aforementioned limitations of the prior art.
17 Specifically, the present invention is a comprehensive solution for effectively
18 arranging and rendering multimedia information comprising mixed data types
19 including: text, graphics, animations, video and mathematical expressions. The
20 mixed data may be displayed in various sizes and formats and is in a portable and

1 maintainable format. In addition, there is support for certain technologies, such
2 as, Macromedia Flash™, multilingual and Unicode support, and client-server n-
3 tier implementations. Furthermore, performance and costs are kept at acceptable
4 levels.

5

6 Additional aspects, features and advantages of the present invention will become
7 better understood with regard to the following description.

8

9 **BRIEF DESCRIPTION OF THE DRAWING(S)**

10 Referring briefly to the drawings, embodiments of the present invention will be
11 described with reference to the accompanying drawings in which:

12

13 Figure 1A illustrates an exemplary system constructed in accordance with the
14 teachings expressed herein.

15

16 Figure 1B illustrates an exemplary networked system constructed in accordance
17 with the teachings expressed herein.

18

19 Figure 2 illustrates an exemplary data format in accordance with the teachings
20 expressed herein.

1

2 Figure 3 illustrates an exemplary process flow in accordance with the teachings
3 expressed herein.

4

5 Figure 4 illustrates an exemplary psuedo-code listing implementing the
6 embodiment of FIG. 3 in accordance with the teachings expressed herein.

7

8 Figure 5 illustrates an additional and exemplary process flow in accordance with
9 the teachings expressed herein.

10

11 Figure 6 illustrates an exemplary psuedo-code listing implementing the
12 embodiment of FIG. 5 in accordance with the teachings expressed herein.

13

14 Figure 7 illustrates an exemplary user interface in accordance with the teachings
15 expressed herein.

16

17 DETAILED DESCRIPTION OF THE PRESENT INVENTION

18 Referring more specifically to the drawings, for illustrative purposes the present
19 invention is embodied in the system configuration, method of operation, data
20 format and application code, generally shown in Figures 1 - 7. Application code

1 may be embodied in any form of computer program product. A computer program
2 product comprises a medium configured to store or transport computer readable
3 code, or in which computer readable code may be embedded. Some examples of
4 computer program products are CD-ROM disks, ROM cards, floppy disks,
5 magnetic tapes, computer hard drives, servers on a network, and carrier waves.

6

7 It will be appreciated that the system, method of operation, data object and
8 computer product described herein may vary as to the details without departing
9 from the basic concepts disclosed herein. Moreover, numerous specific details
10 are set forth in order to provide a more thorough description of the present
11 invention. However, all specific details may be replaced with generic ones.
12 Furthermore, well-known features have not been described in detail so as not to
13 obfuscate the principles expressed herein. While exemplary embodiments of the
14 present invention described herein is specifically directed to a Macromedia Flash-
15 XML-MathML based environment, the invention is not limited thereby as one
16 skilled in the art can readily adapt the concepts presented herein to a preferred
17 environment. Therefore, other suitable and equivalent programming languages,
18 platforms and architectures, etc. fall within the scope of the present invention.

19

1 FIG 1 illustrates an exemplary hardware configuration of a processor-controlled
2 system on which the present invention is implemented. One skilled in the art will
3 appreciate that the present invention is not limited by the depicted configuration
4 as the present invention may be implemented on any past, present and future
5 configuration, including for example, workstation/desktop/laptop/handheld
6 configurations, client-server configurations, n-tier configurations, distributed
7 configurations, other networked configurations, etc., having the necessary
8 components for carrying out the principles expressed herein.

9

10 FIGS. 1A & B generally depict an advanced versatile layout and rendering system
11 700 in accordance with the teachings expressed herein, comprising, but not
12 limited to, a bus 705 that allows for communication among at least one processor
13 710, at least one memory 715 and at least one storage device 720. The bus 705 is
14 also coupled to receive inputs from at least one input device 725, e.g., mouse,
15 keyboard, pen, pad, etc., and provide outputs to at least one output device 730,
16 monitor, printer, other display medium, etc.. The at least one processor 710 is
17 configured to perform the techniques provided herein, and more particularly, to
18 execute the following exemplary computer program product embodiment of the
19 present invention. Alternatively, the logical functions of the computer program
20 product embodiment may be distributed among processors connected through

1 networks or other communication means used to couple processors. The
2 computer program product also executes under various operating systems, such as
3 versions of Microsoft Windows™, Apple Macintosh™, UNIX, etc.

4

5 The present invention may be implemented as a computer program product (also
6 referred to as “QD module”) that is developed for and implemented in the
7 Macromedia Flash™ environment as, e.g., a Flash™ client application code
8 module. The QD module in conjunction with a Super-Versatile-Text Display sub-
9 module (also referred to as “SVT module”) (described below) effectively present
10 multimedia information on a display output device.

11

12 FIG. 2 displays an exemplary data format utilized by the QD module in
13 accordance with the present invention. That the depicted layout and data are
14 necessarily defined by the environment in which they are used will be apparent to
15 those skilled in the art. In one embodiment, the QD data format is implemented
16 as an XML object, an open web standard that is understood by a Flash™
17 application. The QD data format preferably uses Unicode as the character
18 encoding, which allows for a huge character set, including most languages and
19 math symbols. The QD data format also allows for and intermingles styled text,
20 such as italics, bold, etc., graphics, and mathematical expressions, symbols and

1 other indicia. The graphics may be defined as standard JPEG files or as Flash
2 SWF™ files and can be animated or interactive. Mathematical expressions are
3 defined as MathML, an open standard based on XML, which can be imported and
4 exported by most math software products.

5

6 FIG. 3 depicts an exemplary process flow of the QD module in accordance with
7 the present invention.

8

9 As shown, at 301, content data, e.g., question data is entered into the system. The
10 content data includes text, styled text, specifications of external data files
11 (containing, e.g., graphics or animations), MathML and other displayable objects.
12 The content data is used to generate main question content and associated answer,
13 Visual Aid (optionally), and Descriptive Solution (optionally) content.

14

15 At 302, the system processes the question data and converts said data into an
16 XML tree object. The question data is used to generate text for a main question.

17

18 At 303, the system displays the question text as a Flash™ data block.

19

- 1 At 304, the system displays potential answer(s) to the main question as a Flash™
- 2 data block;
- 3
- 4 At 305, the system checks for a Visual Aid related to the main question. As its
- 5 name suggests, a Visual Aid, graphical illustrates related question concepts.
- 6 Depending on the results, processing continues to 306 or 307. If there is a Visual
- 7 Aid, processing continues to 306 and then 307. If there is no Visual Aid,
- 8 however, processing continues directly to 307.
- 9
- 10 At 306, the system displays the Visual Aid as a Flash™ data block and processing
- 11 continues to 307.
- 12
- 13 At 307 and the system checks for a Descriptive Solution related to the main
- 14 question. Depending on the results, processing continues to 308 or 309. If there is
- 15 a Descriptive Solution, processing continues to 308 and then 309. If there is no
- 16 Descriptive Solution, however, processing continues directly to 309..
- 17
- 18 At 308, the system saves the Descriptive Solution for later display as a Flash™
- 19 data block and processing continues to 307.
- 20

1 At 309, the system aligns all data elements according to a desired layout.

2

3 At 310, the system displays the question accordingly.

4

5 FIG. 7 depicts an exemplary user interface depicting the various elements for
6 display. As shown, the question text data is presented as Display Area 2, the
7 potential answer choice(s) data is presented as Display Area 4, the correct answer
8 data is presented as Display Area 6, the Visual Aid data is presented as Display
9 Area 8 and the Descriptive Solution data is presented as Display Area 10.

10

11 FIG. 4 depicts exemplary pseudo code for implementing the QD module (also
12 reproduced below).

13

14 **QD Pseudo-code**

15
16 **function** parseQuestionXML
17 convert raw text to an XML tree
18 get question layout style from XML
19 **end** parseQuestionXML **function**
20
21

```
1      function buildQuestionObjects
2          // Sort through branches of question XML.
3          For each branch
4              if the branch is the main question text
5                  create a movieclip to contain the text
6                  call the displaySVTBlock function
7              else if the branch is the answer options
8                  create a movieclip to hold the answers
9                  for each answer
10                     create a movieclip to hold the answer
11                     attach an answer button
12                     create a movieclip to hold the answer text
13                     call the displaySVTBlock function
14                 end for
15             else if the branch is some other content block
16                 if the type of content is visual aid
17                     if this layout calls for a visual aid
18                         create a movieclip to contain the
19                         visual aid
20                         call the displaySVTBlock function
21                     else if the type of content is descriptive
22                     solution
23                         save the contents for possible later
24                     display
25                 end if
```

```
1           end if
2
3           end for
4
5           function layoutQuestion
6               // Positions are based on the question layout style.
7               Position the main question text
8               position the answer block
9               position the answers within the answer block
10              position the visual aid, if required
11              position any other content block
12           end layoutQuestion function
13
14
```

15 FIGS. 5 and 6 depict additional features of the QD module in accordance with the
16 present invention. Specifically, FIG. 5 illustrates an exemplary process flow of
17 the Super-Versatile-Text Display module or SVT module. The QD module
18 interacts with (calls) the SVT module to visually render the QD content data.

19
20 As shown, at 501, content data is entered into the system. This content data is
21 displayed as follows:

22

1 At 502, the system traverses the XML tree to determine if content (node) is left
2 to display. If yes, processing continues to 503. If no, processing continues to
3 505.

4

5 At 503, the system determines the kind of content left to display. Depending on
6 the results, the system follows alternate paths. If the content is text, processing
7 continues to 504A. If the content is an external file, processing continues to
8 504B. If the content is MathML, processing continues to 504C.

9

10 At 504A, the system locates a display line that can hold the text data object. The
11 system then creates a new text object having the appropriate text and style format
12 and processing returns to 502.

13

14 At 504B, the system locates a display line that can hold the external file data
15 object. The system then loads the external file onto the line and processing returns
16 to 502.

17

18 At 504C, the system locates a display line that can hold the MathML data object.
19 The system then renders the MathML object and processing returns to 502.

20

1 When there is no node-data content left to display, processing continues to 505

2

3 At 505, the system formats the lines and all data objects within them and displays
4 the same at 506.

5

6 FIG. 6 depicts exemplary pseudo code for implementing the SVT module (also
7 reproduced below).

8

9 **SVT Display Pseudo-code**

10

11

12 // The displayContentBlock function is the interface to
13 other code.
14 // External code would call this function, specifying the
15 xml data to
16 // display, the destination to display into, and any non-
17 default
18 // configuration options.

19

20 Function displaySVTBlock

21

```
1           // Initialize the environment of the destination,
2           based on
3           // configuration options.
4           Set the environment's width
5           set a default text style
6
7           for each node in the XML data
8               if node is text
9                   call the displayText function
10              else if node is a visual aid file reference
11                  call the loadFile function
12              else if node is MathML
13                  call the displayMath function
14              end if
15           end for
16
17           for each line that has been created in destination
18               for each object in line
19                   gather measurements
20               end for
21               compute shared baseline and boundaries of line
22               for each object in line
23                   position the object so baselines are
24                   aligned
25           end for
```

```
1           align line to other lines and destination
2       end for
3
4   end displaySVTBlock
5
6
7
8   function displayText
9
10          inherit the default text style
11          modify the style as specified for this node
12          create an object to hold text within the current line
13
14          while there is text in the node
15              remove a word of text
16              add the word to the current line of destination
17              if current line has exceeded length
18                  remove the last line
19                  mark the line done
20                  create a new current line
21                  create an object to hold text within the
22          current line
23                  add the word to the current line
24          end if
25      end while
```

```
1
2      end renderText
3
4
5
6      function loadFile
7
8          extract file information from node
9          create an object of the file's given dimensions
10         begin loading the file
11
12         if the object fits in the current line of destination
13             place the object into the line
14         else
15             create a new line
16             if the object doesn't fit into the new empty
17             line
18                 scale the object to fit the line
19             end if
20             place the object into the line
21         end if
22
23     end loadFile
24
25
```

```
1
2     function displayMath
3
4         create an object to render the math node into
5         extract MathML data from node
6         call the renderMath function
7
8         if the object fits in the current line of destination
9             place the object into the line
10        else
11            create a new line
12            if the object doesn't fit into the new empty
13            line
14                scale the object to fit the line
15            end if
16            place the object into the line
17        end if
18
19    end displayMath
20
21
22
23    // This function is called recursively - that is, it calls
24    itself.
```

```
1      // MathML objects are frequently composed of other MathML
2      objects,
3      // such as fractions of fractions, so this recursion is
4      necessary.
5      // Nodes in the MathML are of two major types: composite
6      or terminal.
7      // Composite nodes contain other nodes, while terminal
8      nodes contain
9      // only values, such as a number, variable, or mathematical
10     symbol.
11     // For instance, a fraction node would have two child
12     nodes, the
13     // numerator and denominator. Each child is rendered
14     separately, then
15     // the first is placed over the other, and a line is drawn
16     between
17     // them.
18
19     Function renderMath
20
21         if the current node is a composite node
22             call the renderMath function on each child node
23             layout the child node based on node type
24         else if the current node is a terminal node
25             if the node contains text
```

```
1           create a text box of the appropriate
2           style
3           else if the node contains an encoded symbol
4               insert the graphic for that symbol
5           end if
6       end if
7
8   end renderMath
9
```

10 EXTERNAL (PUBLIC) FUNCTION DEFINITIONS

11 This section lists the external functions of the Question Display module. While
12 there is no strict object-oriented public/private status here, these are the only
13 functions that should be called by outside code. Unless specified, each function
14 has no return value.

15

16 init(initObj)

17 This function should be called once, before calling any of the other functions
18 below. It initializes the QD environment with various constants, including font
19 settings and width and height measurements.

20 Arguments

21 initObj An object containing any named values to override configuration options

22

1 displayQuestion(question, return_mc, return_func)

2 This function displays a question. When display is complete, it calls the specified

3 return function.

4 **Arguments**

5 question The question data, in well-formed XML text.

6 return_mc [optional] The context in which return_func will be called on

7 completion.

8 return_func [optional] The function that will be called within return_mc.

9

10

11 removeQuestion()

12 This function removes the displayed question.

13 **Arguments**

14 (none)

15

16 activateAnswers(notify_mc, notify_func)

17 This function activates the answer options, making them interactive for the user.

18 When an answer is selected, the specified notification function is called with two

19 arguments: the letter of the user's selected answer, and the correct answer.

20 **Arguments**

1 notify_mc The context in which notify_func will be called on completion.

2 notify_func The function that will be called within notify_mc.

3

4 deactivateAnswers()

5 Deactivates all answer options, so that they do no allow user selection.

6 **Arguments**

7 (none)

8

9 showUserAnswer(userAnswer, showCorrect)

10 This function marks the answer specified in userAnswer, showing whether the
11 selection was correct or incorrect. If showCorrect is set to true and the user's
12 answer was incorrect, the correct answer is also be revealed.

13 **Arguments**

14 userAnswer The letter of the answer the user has selected.

15 showCorrect A true/false flag, telling whether to reveal the correct answer.

16

17

18 getCorrectAnswer()

19 Returns the letter of the correct answer for a displayed question.

20 **Arguments**

1 (none)

2

3 showCorrectAnswer()

4 Reveals to the user the correct answer to a displayed question.

5 Arguments

6 (none)

7

8

9 getAnswerArray()

10 Returns an array of the letters of all the answer options. This is useful for allowing
11 user selection of an answer via the keyboard.

12 Arguments

13 (none)

14

15 isSolution()

16 This function returns true if there is a descriptive solution available for this
17 question, and false otherwise.

18 Arguments

19 (none)

20

1 displaySolution(dest_mc, destWidth, return_mc, return_func)
2 This function renders the descriptive solution for the question, if it exists. The
3 solution is rendered in the specified movieclip, at the specified width. Once the
4 render is complete, the return function is called.

5 **Arguments**

6 dest_mc The movieclip to render the descriptive solution into.
7 destWidth The width in pixels of dest_mc's display area.
8 return_mc [optional] The context in which return_func will be called on
9 completion.
10 return_func [optional] The function that will be called within return_mc.

11

12 displayXMLBlock(svt_xml, dest_mc, destWidth, return_mc, return_func)
13 This function renders an XML object of question data (also called an SVT Block)
14 into the specified movieclip, at the specified width. Once the render is complete,
15 the return function is called.

16 **Arguments**

17 svt_xml An XML object containing a valid chunk of SVT data.
18 dest_mc The movieclip to render the descriptive solution into.
19 destWidth The width in pixels of dest_mc's display area.

1 return_mc [optional] The context in which return_func will be called on
2 completion.

3 return_func [optional] The function that will be called within return_mc.

4

5

6 displayTextBlock(svtText, dest_mc, destWidth, return_mc, return_func)

7 Like displayXMLBlock(), this function renders an SVT Block into the specified
8 movieclip, at the specified width. However, the SVT Block should be passed as
9 plain text, rather than as an XML object. Once the render is complete, the return
10 function is called.

11 Arguments

12 svtTextXML text describing a valid chunk of SVT data.

13 dest_mc The movieclip to render the descriptive solution into.

14 destWidth The width in pixels of dest_mc's display area.

15 return_mc [optional] The context in which return_func will be called on
16 completion.

17 return_func [optional] The function that will be called within return_mc.

18

19

20 INTERNAL (PRIVATE) FUNCTION DEFINITIONS

1

2 This section lists the internal functions of the QD module. While there is no strict
3 object-oriented public/private status here, these functions should not be called by
4 outside code. Any interaction should occur through the External Functions listed
5 above. Again, unless specified, each function has no return value)

6

7 **parseQuestionXML(rawText)**

8 This function converts the source text for the question into an XML object. It also
9 checks the XML for the question's layout, which is required before question
10 rendering can begin. The XML object and layout value are both stored within the
11 internal question movieclip.

12 **Arguments**

13 **rawText** A text string containing the well-formed XML for a full question.

14

15 **buildQuestionObjects()**

16 This function sorts through the question XML object, extracting the question text
17 and answers, as well as any visual aid, descriptive solution, or other content.

18 Movieclips are created for the question text, answers and visual aid, and their
19 SVT blocks are rendered, via the displaySVT() function. The descriptive solution,
20 if present, is saved for later display.

1 Arguments

2 (none)

3

4 displaySVT(svt_xml, svt_mc)

5 This function takes an SVT Block and renders it into the specified SVT

6 environment. The SVT Block is an XML object, and the SVT environment is a

7 movieclip containing the settings and configuration information for SVT display.

8 Arguments

9 svt_xml An XML object containing an SVT Block.

10 svt_mc The SVT environment movieclip to render the SVT Block into.

11

12

13 getDisplayLine(svt_mc)

14 This function returns a reference to the current line (a movieclip) in an SVT

15 environment movieclip. The current line will have at least some room for

16 additional content (text, graphics, rendered MathML). If the last existing line is

17 full, or there is no current line, this function will create a new one.

18 Arguments

19 svt_mc An SVT environment movieclip.

20

1 endDisplayLine(svt_mc)

2 This function marks the current display line in the SVT Environment as complete,
3 so that the next call to getDisplayLine() will return a new line. This is useful for
4 line breaks, or when a content object must wrap to the next line.

5 **Arguments**

6 svt_mc An SVT environment movieclip.

7

8

9 displayVisualAid(va_xml, svt_mc)

10 This function renders a visual aid item into an SVT Environment. The visual aid,
11 usually a SWF or JPEG, will be loaded from a separate file. The height and width
12 of the object are specified in the XML, so layout can occur without waiting for the
13 load to complete. (Loading is accomplished using the piiLoader module.)

14 **Arguments**

15 va_xml An XML node from an SVT Block, containing a visual aid.

16 svt_mc An SVT environment movieclip.

17

18 processVisualAid(returnID, va_mc)

1 This function is called from the piiLoader module when a visual aid object has
2 completed loading. It completes the processing of the loaded file, verifying that it
3 fits within the dimensions specified in the XML node of the SVT Block.

4 **Arguments**

5 **returnID** A piiLoader Load ID, uniquely identifying this load.

6 **va_mc** A movieclip containing the loaded file.

7

8 **displayMathML(math_xml, svt_mc)**

9 This function renders a MathML portion of an SVT Block into a single object.

10 The rendering of individual MathML elements is handled by the renderMathML()
11 function. This function handles the allocation of lines within the SVT
12 Environment, wrapping to the next line if the MathML object is too wide.

13 **Arguments**

14 **math_xml** An XML node from an SVT Block, containing MathML data.

15 **svt_mc** An SVT environment movieclip.

16

17 **renderMathML(math_xml, box_mc, ref_tf)**

18 This function renders individual MathML elements into movieclips containing
19 text and library symbols. The rendering is handled recursively, so that it calls
20 itself to render any MathML elements nested within the main element. (For

1 instance, a the fraction MathML element contains two other elements,
2 representing numerator and denominator.) This function takes as arguments a
3 node of MathML data, a movieclip to render that data into, and a text format. The
4 function returns a reference to the movieclip it creates.

5 **Arguments**

6 **math_xml** An XML node containing MathML data.

7 **box_mc** A movieclip to create the new movieclip inside of.

8 **ref_tf** A text format object, to be used in rendering this object's text.

9

10 **displayTextItem(rawText, svt_mc)**

11 This function handles the display of plain and styled text objects from SVT
12 Blocks. It takes a text string and renders it inside the SVT Environment in the
13 current text format, splitting the text and wrapping to multiple lines as necessary.

14 **Arguments**

15 **rawText** A text string.

16 **svt_mc** An SVT environment movieclip.

17

18 **drawBorder(a_mc, color, bwidth, bheight)**

19 This function draws a border within a movieclip, using the Flash line-drawing
20 tools. If bwidth and bheight are not specified, the measured width and height of

1 the movieclip will be used instead. This function is used extensively within the
2 rendering functions to force certain measurements onto a movieclip. For instance,
3 a loaded SWF file might not take up the full space it is meant to occupy,
4 confusing layout. An invisible border greatly eases such layout computations.
5 (Note that the line-drawing functions are prone to overwrite any existing lines
6 within the movieclip.)

7 **Arguments**

8 **a_mc** The movieclip to draw the border into.

9 **color** The color to draw the border with. (Only visible while debugging.)

10 **bwidth** [optional] The width to draw the border.

11 **bheight** [optional] The height to draw the border.

12

13 **layoutQuestion()**

14 This function completes the layout of the previously-built question objects. The
15 question text, answers and visual aid are positioned according to their sizes and
16 the layout style specified in the question XML.

17 **Arguments**

18 **(none)**

19

1 Having now described one or more exemplary embodiments of the invention, it
2 should be apparent to those skilled in the art that the foregoing is illustrative only
3 and not limiting, having been presented by way of example only. All the features
4 disclosed in this specification (including any accompanying claims, abstract, and
5 drawings) may be replaced by alternative features serving the same purpose, and
6 equivalents or similar purpose, unless expressly stated otherwise. Therefore,
7 numerous other embodiments of the modifications thereof are contemplated as
8 falling within the scope of the present invention as defined by the appended
9 claims and equivalents thereto.

10

11 Moreover, the techniques presented herein may be implemented in hardware or
12 software, or a combination of the two. In one embodiment, the techniques are
13 implemented in computer programs executing on programmable computers that
14 each include a processor, a storage medium readable by the processor (including
15 volatile and non-volatile memory and/or storage elements), at least one input
16 device and one or more output devices. Program code is applied to data entered
17 using the input device to perform the functions described and to generate output
18 information. The output information is applied to one or more output devices.

19

1 Each program is preferably implemented in a high level procedural or object
2 oriented programming language to communicate with a computer system,
3 however, the programs can be implemented in assembly or machine language, if
4 desired. In any case, the language may be a compiled or interpreted language. In
5 one embodiment, the present invention is implemented in the ActionScript
6 programming language for use in the Macromedia Flash™ environment. The
7 program code uses Macromedia Flash MX™ to publish, Macromedia Flash
8 Player™ (e.g., Version 6, Release 48 , or better) to execute and utilizes the
9 Macromedia piiLoader and timeQueue code modules.

10

11

12 Each such computer program is preferably stored on a storage medium or device
13 (e.g., CD-ROM, NVRAM, ROM, hard disk, magnetic diskette or carrier wave)
14 that is readable by a general or special purpose programmable computer for
15 configuring and operating the computer when the storage medium or device is
16 read by the computer to perform the procedures described in this document. The
17 system may also be considered to be implemented as a computer-readable storage
18 medium, configured with a computer program, where the storage medium so
19 configured causes a computer to operate in a specific and predefined manner.

20

1 The description of the exemplary embodiment herein assumes knowledge of
2 Macromedia Flash™ and ActionScript™ programming language and a general
3 understanding of programming documentation conventions. Understanding of
4 layout and design issues, such as page layout for the web or for print, and
5 especially as regards the layout of mathematical expressions, will also be useful.

6

7 Additional aspects and/or features of the present invention include: the code
8 attempts to provide general solutions as much as possible, but may be specific to
9 the font and layout size of current implementation. If the font or another part of
10 the display environment is changed radically, spacing within and between lines
11 may be tweaked, accordingly.

12

13 Preferably, math symbols, whether by named entity or Unicode characters, are
14 usable as follows: both named entities and coded characters are expected to exist
15 alone within the XML terminal tags. That is, in one embodiment of the present
16 invention, $<\text{mn}>5</\text{mn}><\text{mn}>\pi</\text{mn}>$ is valid while $<\text{mn}>5\pi</\text{mn}>$ is not.

17

18

- 1 Finally, an embodiment of the present invention having potential commercial
- 2 success is integrated in the Planetii™ Math System™, an online math education
- 3 software product, available at <<http://www.planetii.com/home/>>.

4

1 CLAIMS

2

3 What is claimed is:

4

5 1. A display system for multimedia content data comprising
6 Mathematical Markup Language (MathML) data, said system
7 comprising:

8

9 a display medium having a plurality of display lines for rendering
10 multimedia content data thereon;

11

12 a processor associated with said display medium and configured to:

13

14 receive said multimedia content data comprising textual, MathML, and
15 external file indicia data;

16

17 parse said received multimedia content data to derive said textual,
18 MathML and external file indicia data;

19

1 categorize said textual, MathML and file data according to a data
2 type; wherein said textual data is defined as a TEXT data type, said
3 MathML data is defined as a MATHML data type and said external
4 file indicia data is defined as a FILE data type;

5

6 store said derived and categorized textual, MathML and external file
7 indicia data as a tree having a root node and a plurality of offspring
8 nodes that define left and right subtrees, said root node and said
9 offspring nodes each having one of said derived textual, MathML and
10 external file indicia data and respective data type association;

11

12 define a traverse procedure that includes:

13

14 visiting a node of said tree,

15

16 determining the data type of said node;

17

18 displaying said node data in accordance with said data type,

19 wherein:

20

1 if the data type is TEXT: create a text object having said
2 textual node data and locate a display line to display said text
3 object in accordance with predetermined formatting
4 conventions,
5
6 if the data type is FILE: create a file object having said external
7 file indicia node data and locate a display line to load and
8 display said file object in-line with previously rendered text
9 and in accordance with predetermined formatting conventions,
10
11 if the data type is MATHML, create a MathML data object
12 having said stored MathML node data and locate a display line
13 to display said MathML data object in-line with previously
14 rendered text and in accordance with predetermined formatting
15 conventions,
16
17 applying said traverse procedure upon the left subtree of said
18 visited node;
19

1 applying said traverse procedure upon the right subtree of said
2 visited node; and

3

4 applying said traverse procedure upon said root node such that
5 said root node is the first visited node.

6

7 2. A system as in claim 1 wherein said processor further categorizes said
8 MathML data as MATHML COMPOSITE and MATHML
9 TERMINAL data types;

10

11 stores said categorized MathML data as a MathML tree having a root
12 node and a plurality of offspring nodes that define left and right
13 subtrees of said MathML tree, said root node and said offspring nodes
14 of said MathML tree each having one of said derived MathML data
15 and respective data type association;

16

17 defines a second traverse procedure that includes:

18

19 visiting a node of said MathML tree,

20

1 determining the MathML data type of said MathML tree node,

2

3 displaying said MathML tree node data in accordance with said
4 data type, wherein:

5

6 if the data type is MATHML COMPOSITE: create a
7 MathML data object having said stored MathML
8 composite node data and locate a display line to
9 display said MathML data object in-line with
10 previously rendered text and in accordance with
11 predetermined formatting conventions, and,

12

13 if the data type is MATHML TERMINAL: create a
14 MathML data object having said stored MathML node
15 terminal node data and locate a display line to display
16 said MathML data object in-line with previously
17 rendered text and in accordance with predetermined
18 formatting conventions,

19

- 1 applying said second traverse procedure upon the left sub-
- 2 MathML tree of said visited MathML tree node;
- 3
- 4 applying said second traverse procedure upon the right sub-
- 5 MathML tree of said visited MathML tree node; and
- 6
- 7 applying said second traverse procedure upon said root node of
- 8 said MathML tree such that said root node is the first visited
- 9 node of the MathML tree.
- 10
- 11 3. The system as in claim 1 or 2 wherein said multimedia content data
- 12 comprises Markup Language data.
- 13
- 14 4. The system as in claim 3 wherein said Markup Language data
- 15 comprises Extensible Markup Language (XML) data.
- 16
- 17 5. The system as in claim 1 or 2 wherein said external file indicia data
- 18 comprises information associated with data files comprising graphics,
- 19 video, animation, other displayable assets or a combination thereof.
- 20

1 6. The system as in claim 4 wherein said data files are Macromedia or
2 Flash-compatible files.

3

4 7. A method of displaying multimedia content data comprising
5 Mathematical Markup Language (MathML) data, said method
6 comprising:

7

8 providing a display medium having a plurality of display lines for
9 rendering multimedia content data thereon;

10

11 receiving said multimedia content data comprising textual, MathML,
12 and external file indicia data;

13

16

17 categorizing said textual, MathML and file data according to a data
18 type; wherein said textual data is defined as a TEXT data type, said
19 MathML data is defined as a MATHML data type and said external
20 file indicia data is defined as a FILE data type;

1

2 storing said derived and categorized textual, MathML and external
3 file indicia data as a tree having a root node and a plurality of offspring
4 nodes that define left and right subtrees, said root node and said
5 offspring nodes each having one of said derived textual, MathML and
6 external file indicia data and respective data type association;

7

8 defining a traverse procedure that includes:

9

10 visiting a node of said tree,

11

12 determining the data type of said node;

13

14 displaying said node data in accordance with said data type,

15 wherein:

16

17 if the data type is TEXT: create a text object having said
18 textual node data and locate a display line to display said text
19 object in accordance with predetermined formatting
20 conventions,

1

2 if the data type is FILE: create a file object having said external
3 file node data and locate a display line to load and display said
4 file object in-line with previously rendered text and in
5 accordance with predetermined formatting conventions,

6

7 if the data type is MATHML, create a MathML data object
8 having said stored MathML node data and locate a display line
9 to display said MathML data object in-line with previously
10 rendered text and in accordance with predetermined formatting
11 conventions,

12

13 applying said traverse procedure upon the left subtree of said
14 visited node;

15

16 applying said traverse procedure upon the right subtree of said
17 visited node; and

18

19 applying said traverse procedure upon said root node such that
20 said root node is the first visited node.

1

2 8. The method as in claim 7 wherein said method further comprises
3 categorizing said MathML data as MATHML COMPOSITE and
4 MATHML TERMINAL data types;

5

6 storing said categorized MathML data as a MathML tree having a root
7 node and a plurality of offspring nodes that define left and right
8 subtrees of said MathML tree, said root node and said offspring nodes
9 of said MathML tree each having one of said derived MathML data
10 and respective data type association;

11

12 defining a second traverse procedure that includes:

13

14 visiting a node of said MathML tree,

15

16 determining the MathML data type of said MathML tree node,

17

18 displaying said MathML tree node data in accordance with said
19 data type, wherein:

20

1 if the data type is MATHML COMPOSITE: create a
2 MathML data object having said stored MathML
3 composite node data and locate a display line to
4 display said MathML data object in-line with
5 previously rendered text and in accordance with
6 predetermined formatting conventions, and,
7
8 if the data type is MATHML TERMINAL: create a
9 MathML data object having said stored MathML node
10 terminal node data and locate a display line to display
11 said MathML data object in-line with previously
12 rendered text and in accordance with predetermined
13 formatting conventions,
14
15 applying said second traverse procedure upon the left sub-
16 MathML tree of said visited MathML tree node;
17
18 applying said second traverse procedure upon the right sub-
19 MathML tree of said visited MathML tree node; and
20

1 applying said second traverse procedure upon said root node of
2 said MathML tree such that said root node is the first visited
3 node of the MathML tree.

4

5 9. The method as in claim 7 or 8 wherein said multimedia content data
6 comprises Markup Language data.

7

8 10. The method as in claim 9 wherein said Markup Language data
9 comprises Extensible Markup Language (XML) data.

10

11 11. The method as in claim 7 or 8 wherein said external file indicia data
12 comprises information associated with data files comprising graphics,
13 video, animation, other displayable objects or a combination thereof.

14

15 12. The method as in claim 11 wherein said data files are Macromedia
16 Flash or Flash-compatible files.

17

18

10

80

1 13. A user interface for presenting question and answer multimedia data
2 comprising mathematical MathML content, said system comprising:
3
4 a processor configured to:
5
6 receive said multimedia data comprising textual, MathML and external
7 file data;
8
9 parse said received multimedia data to derive said textual, MathML
10 and external file data;
11
12 generate question content and associated answer, visual aid and
13 descriptive solution content based on said derived textual, MathML
14 and external file data;
15
16 display first, second, third and fourth display containers on said
17 display device, said first display container including a presentation
18 area for displaying said question content; said second display container
19 including a presentation area for displaying said answer content; said
20 third display container including a presentation area for displaying said

1 visual aid content; said fourth display container including a
2 presentation area for displaying said descriptive solution content; and

3

4 wherein for each of said first, second, third and fourth display
5 containers said MathML and external file data of said container
6 content are displayed in-line with said textual data of said container
7 content.

8

9 14. The user interface as in claim 13 wherein said external file data
10 includes graphics, video, animation, other displayable objects or any
11 combination thereof.

12

13 15. The user interface as in claim 13 or 14 wherein said multimedia data
14 comprises Markup Language data.

15

16 16. The user interface as in claim 15 wherein said Markup Language data
17 comprises Extensible Markup Language (XML) data.

18

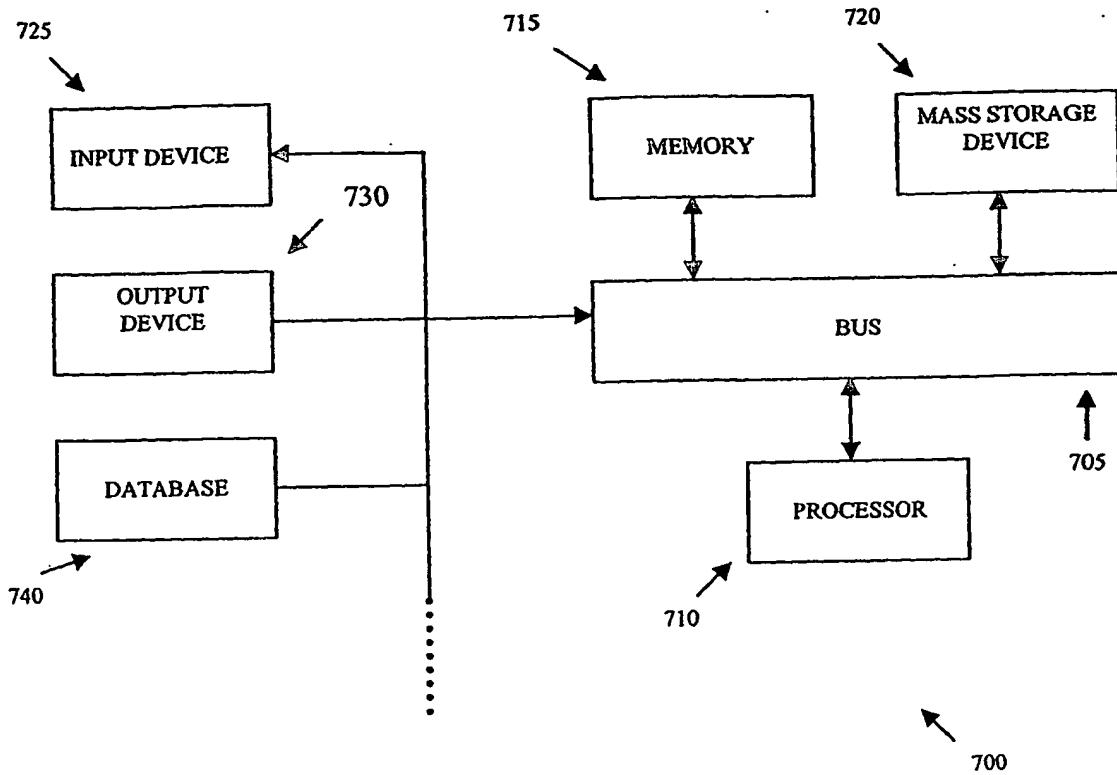


Fig. 1A

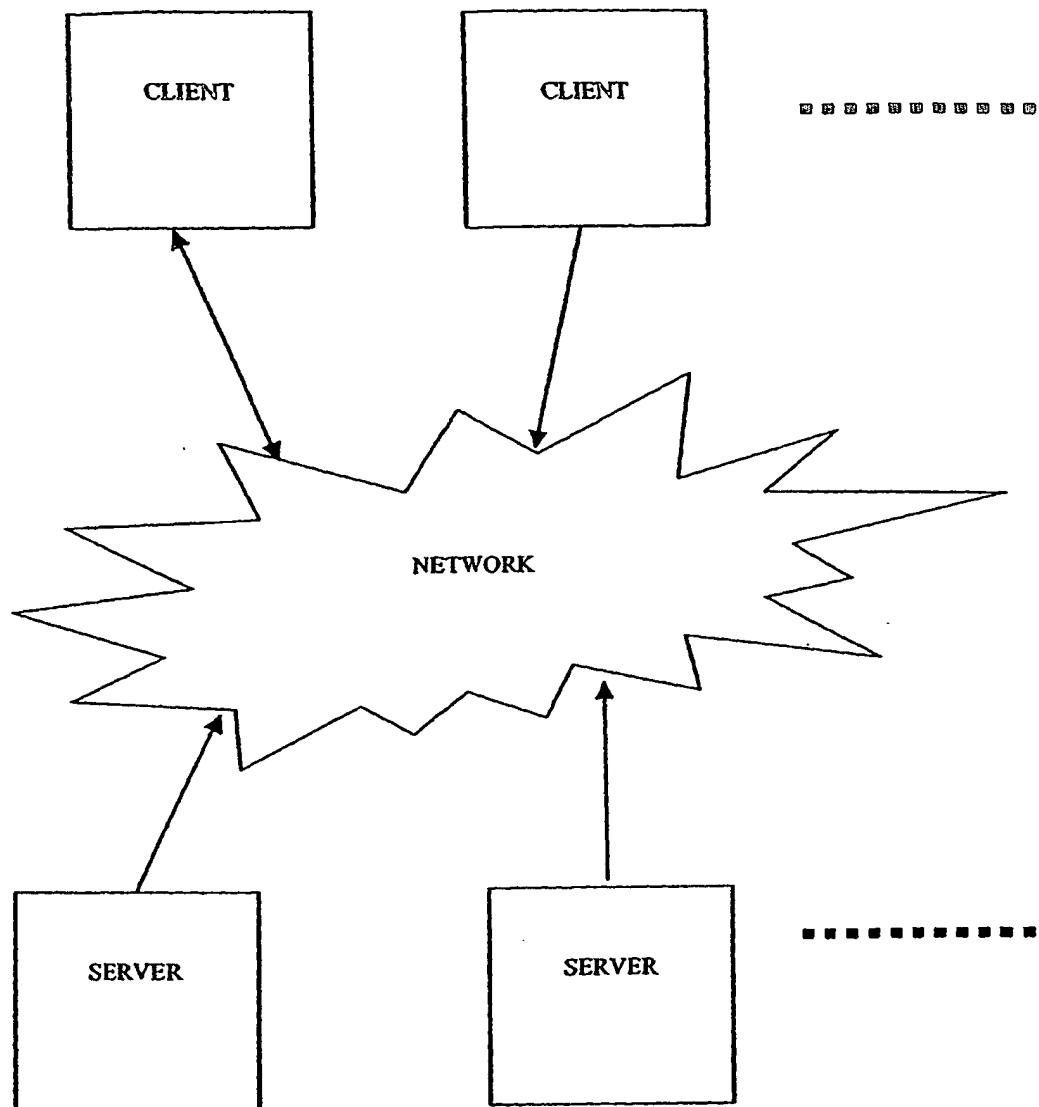


Fig. 1B

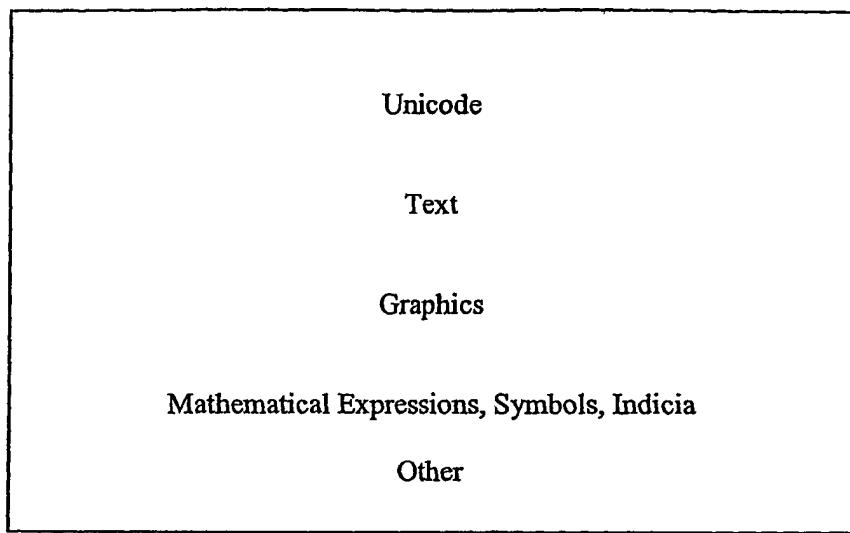
QD Data Structure

FIG. 2

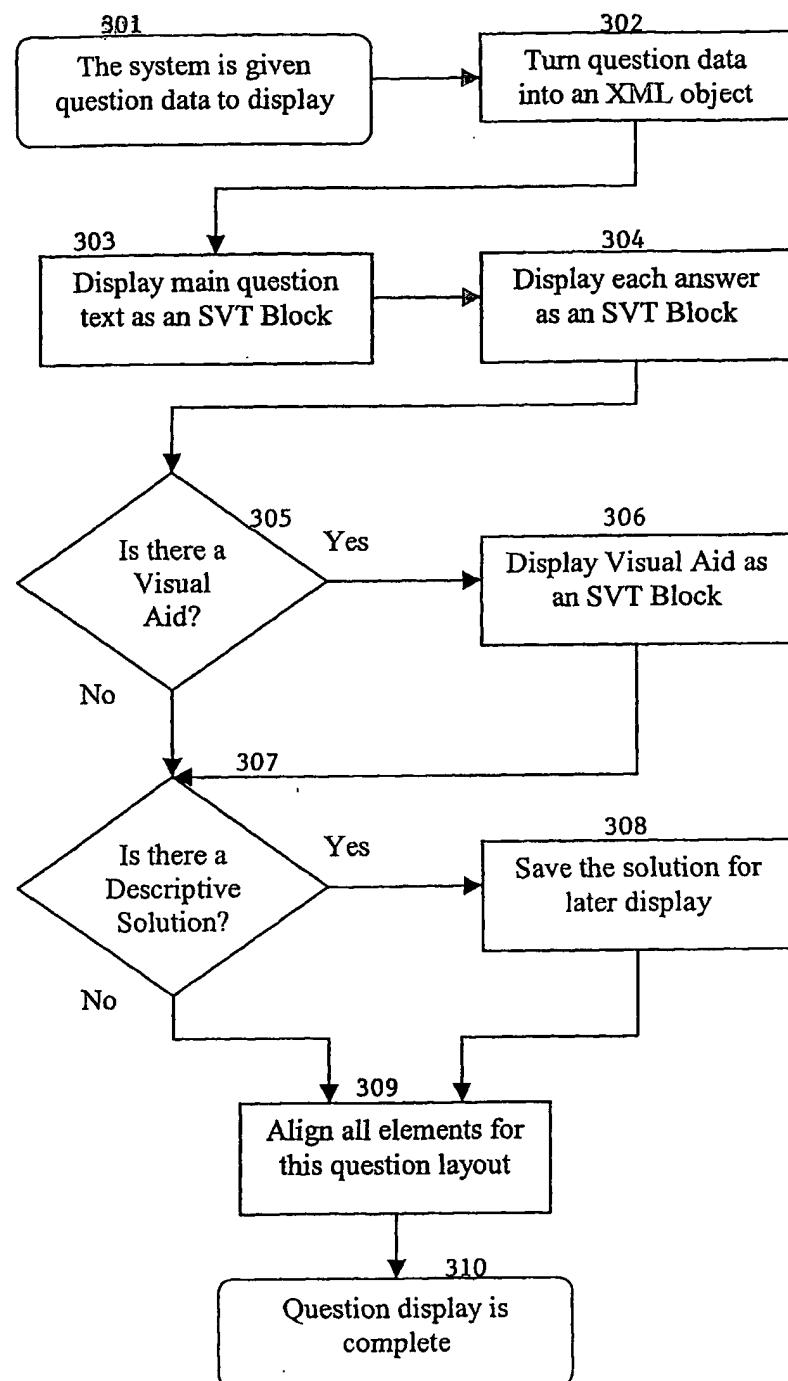
Question Display Flowchart

Fig. 3

Question Display Pseudo-code

```
function parseQuestionXML
    convert raw text to an XML tree
    get question layout style from XML
end parseQuestionXML function

function buildQuestionObjects
    // Sort through branches of question XML.
    for each branch
        if the branch is the main question text
            create a movieclip to contain the text
            call the displaySVTBlock function
        else if the branch is the answer options
            create a movieclip to hold the answers
            for each answer
                create a movieclip to hold the answer
                attach an answer button
                create a movieclip to hold the answer text
                call the displaySVTBlock function
            end for
        else if the branch is some other content block
            if the type of content is visual aid
                if this layout calls for a visual aid
                    create a movieclip to contain the visual aid
                    call the displaySVTBlock function
            else if the type of content is descriptive solution
                save the contents for possible later display
            end if
        end if
    end for
end buildQuestionObjects function

function layoutQuestion
    // Positions are based on the question layout style.
    position the main question text
    position the answer block
    position the answers within the answer block
    position the visual aid, if required
    position any other content block
end layoutQuestion function
```

Fig. 4

SVT Display Flowchart

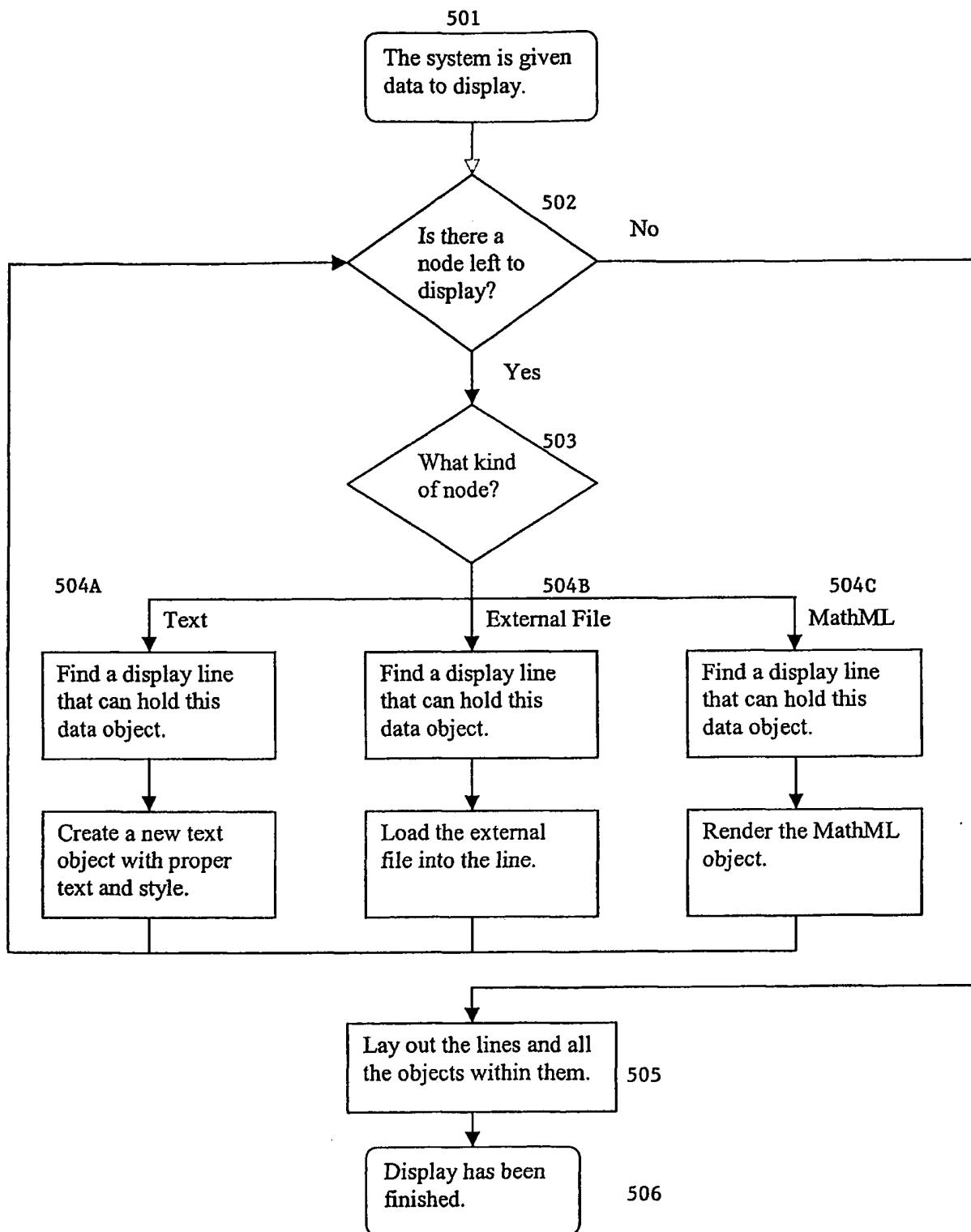


Fig. 5

SVT Display Pseudo-code

```

// The displayContentBlock function is the interface to other
code.
// External code would call this function, specifying the XML
data to
// display, the destination to display into, and any non-default
// configuration options.

function displaySVTBlock
    // Initialize the environment of the destination,
    based on
        // configuration options.
        // set the environment's width
        // set a default text style

        for each node in the XML data
            if node is text
                call the displayText function
            else if node is a visual aid file
                call the loadFile function
            else if node is MathML
                call the displayMath function
            end if
        end for

        for each line that has been created in destination
            for each object in line
                gather measurements
            end for
            compute shared baseline and boundaries of
            line
            for each object in line
                position the object so
            end for
        align line to other lines and destination
    end for
end displaySVTBlock

function displayText
    inherit the default text style
    modify the style as specified for this node
    create an object to hold text within the current line

    while there is text in the node
        remove a word of text
        add the word to the current line of
    destination
        if current line has exceeded length
            remove the last line
            mark the line done
            create a new current line
            create an object to hold text
        within the current line
            add the word to the current
        line
        end if
    end while
end renderText

function loadFile
    extract file information from node
    create an object of the file's given dimensions
    begin loading the file

    if the object fits in the current line of destination
        place the object into the line
    else
        create a new line
        if the object doesn't fit into the new
empty line
        scale the object to fit the
line
        end if
    end if
place the object into the line
end loadFile

function displayMath
    create an object to render the math node into
    extract MathML data from node
    call the renderMath function

    if the object fits in the current line of destination
        place the object into the line
    else
        create a new line
        if the object doesn't fit into the new
empty line
        scale the object to fit the
line
        end if
    end if
place the object into the line
end displayMath

```

Fig. 6

Index	Subtopic Code	Sample Question Text	Multiple Choice Answer			
			a	b	c	d
70	02N02C	80 $354 = \underline{\hspace{2cm}}$ tens and 4 ones	5	35	334	30
71	02N02C	There were 85 people in the park. 37 of them were male. How many of them were female?	52	42	58	122
72	02N02C	Mrs. Kim sold 25 eggs this morning. She sold another 50 eggs in the afternoon. She still has 18 eggs left. How many eggs did she have to begin with?	63 eggs	76 eggs	68 eggs	7 eggs
73	02N02C	$854 + 354 = \underline{\hspace{2cm}}$	1,208	1,108	1,158	500
74	02N02C	100 $5 \times 28 = \underline{\hspace{2cm}}$	5 + 5	$2+2+2+2$	55	22
75	02N02C	$100 - 4 \times 3 = \underline{\hspace{2cm}}$	4	12	6	9
76	02N02C	Grace is 30 years younger than her father. Her brother is 1 year older than Grace. Grace's father is 67 years old. How old is Grace's brother?	89 years old	27 years old	28 years old	28 years old

Fig. 7

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US04/10027

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 15/00, 17/30
US CL : 715/513; 707/102

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 715/513; 707/102

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,463,440 B1 (HIND et al) 08 October 2002 (08.10.2002), whole document.	1-16
A	CARLISLE. D. OpenMath, MathML, and XSL ACM SIGSAM bull. June 2000, Vol. 34. Issue 2, pages 6-11.	1-16

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 19 August 2004 (19.08.2004)	Date of mailing of the international search report 09 SEP 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Joseph Feild <i>Peggy Harrold</i> Telephone No. (703) 305-3900

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/10027

Continuation of B. FIELDS SEARCHED Item 3:
ACM
search terms: MathML, document parsing, trees

Exhibit C-2

FedEx® USA Airbill

Express Flight Number 8464 2674 6500

Sender's Copy

1 From Please print and print next
Patrice King Sender's FedEx® Account Number
41305 Date 2224-2932-3

2 For FedEx® Airbill only
Patrice King Phone (973) 992-1990

3 For FedEx® Airbill only
GOODWIN PROCTER LLP

4 For FedEx® Airbill only
103 EISENHOWER PKWY

5 For FedEx® Airbill only
CITY: ROSELAND State: NJ Zip: 07068-1031

6 For FedEx® Airbill only
214 NE 29th Ave We cannot deliver to P.O. boxes or P.O. code.

7 For FedEx® Airbill only
Joe Fusion Phone ()

8 For FedEx® Airbill only
Company

9 For FedEx® Airbill only
Address

10 For FedEx® Airbill only
Address

11 For FedEx® Airbill only
CITY: Portland State: OR Zip: 97232

12 For FedEx® Airbill only
Address

13 For FedEx® Airbill only
Address

Try online shipping at fedex.com

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

4a Express Package Service

FedEx Priority Overnight FedEx Standard Overnight FedEx First Overnight

Delivery commitment may be held to a local area.

Not available on Saturday.

FedEx 2Day

Second business day

Not available on Saturday.

FedEx Express Saver

Third business day

Not available on Saturday.

FedEx Express One-Day

Not available on Saturday.

FedEx Express Two-Day

Not available on Saturday.

FedEx Express Three-Day

Not available on Saturday.

FedEx Express Four-Day

Not available on Saturday.

FedEx Express Five-Day

Not available on Saturday.

FedEx Express Six-Day

Not available on Saturday.

FedEx Express Seven-Day

Not available on Saturday.

FedEx Express Eight-Day

Not available on Saturday.

FedEx Express Nine-Day

Not available on Saturday.

FedEx Express Ten-Day

Not available on Saturday.

FedEx Express Eleven-Day

Not available on Saturday.

FedEx Express Twelve-Day

Not available on Saturday.

FedEx Express Thirteen-Day

Not available on Saturday.

FedEx Express Fourteen-Day

Not available on Saturday.

FedEx Express Fifteen-Day

Not available on Saturday.

FedEx Express Sixteen-Day

Not available on Saturday.

FedEx Express Seventeen-Day

Not available on Saturday.

FedEx Express Eighteen-Day

Not available on Saturday.

FedEx Express Nineteen-Day

Not available on Saturday.

FedEx Express Twenty-Day

Not available on Saturday.

FedEx Express Twenty-One-Day

Not available on Saturday.

FedEx Express Twenty-Two-Day

Not available on Saturday.

FedEx Express Twenty-Three-Day

Not available on Saturday.

FedEx Express Twenty-Four-Day

Not available on Saturday.

FedEx Express Twenty-Five-Day

Not available on Saturday.

FedEx Express Twenty-Six-Day

Not available on Saturday.

FedEx Express Twenty-Seven-Day

Not available on Saturday.

FedEx Express Twenty-Eight-Day

Not available on Saturday.

FedEx Express Twenty-Nine-Day

Not available on Saturday.

FedEx Express Thirty-Day

Not available on Saturday.

FedEx Express Thirty-One-Day

Not available on Saturday.

FedEx Express Thirty-Two-Day

Not available on Saturday.

FedEx Express Thirty-Three-Day

Not available on Saturday.

FedEx Express Thirty-Four-Day

Not available on Saturday.

FedEx Express Thirty-Five-Day

Not available on Saturday.

FedEx Express Thirty-Six-Day

Not available on Saturday.

FedEx Express Thirty-Seven-Day

Not available on Saturday.

FedEx Express Thirty-Eight-Day

Not available on Saturday.

FedEx Express Thirty-Nine-Day

Not available on Saturday.

FedEx Express Forty-Day

Not available on Saturday.

FedEx Express Forty-One-Day

Not available on Saturday.

FedEx Express Forty-Two-Day

Not available on Saturday.

FedEx Express Forty-Three-Day

Not available on Saturday.

FedEx Express Forty-Four-Day

Not available on Saturday.

FedEx Express Forty-Five-Day

Not available on Saturday.

FedEx Express Forty-Six-Day

Not available on Saturday.

FedEx Express Forty-Seven-Day

Not available on Saturday.

FedEx Express Forty-Eight-Day

Not available on Saturday.

FedEx Express Forty-Nine-Day

Not available on Saturday.

FedEx Express Fifty-Day

Not available on Saturday.

FedEx Express Fifty-One-Day

Not available on Saturday.

FedEx Express Fifty-Two-Day

Not available on Saturday.

FedEx Express Fifty-Three-Day

Not available on Saturday.

FedEx Express Fifty-Four-Day

Not available on Saturday.

FedEx Express Fifty-Five-Day

Not available on Saturday.

FedEx Express Fifty-Six-Day

Not available on Saturday.

FedEx Express Fifty-Seven-Day

Not available on Saturday.

FedEx Express Fifty-Eight-Day

Not available on Saturday.

FedEx Express Fifty-Nine-Day

Not available on Saturday.

FedEx Express Sixty-Day

Not available on Saturday.

FedEx Express Sixty-One-Day

Not available on Saturday.

FedEx Express Sixty-Two-Day

Not available on Saturday.

FedEx Express Sixty-Three-Day

Not available on Saturday.

FedEx Express Sixty-Four-Day

Not available on Saturday.

FedEx Express Sixty-Five-Day

Not available on Saturday.

FedEx Express Sixty-Six-Day

Not available on Saturday.

FedEx Express Sixty-Seven-Day

Not available on Saturday.

FedEx Express Sixty-Eight-Day

Not available on Saturday.

FedEx Express Sixty-Nine-Day

Not available on Saturday.

FedEx Express Seventy-Day

Not available on Saturday.

FedEx Express Seventy-One-Day

Not available on Saturday.

FedEx Express Seventy-Two-Day

Not available on Saturday.

FedEx Express Seventy-Three-Day

Not available on Saturday.

FedEx Express Seventy-Four-Day

Not available on Saturday.

FedEx Express Seventy-Five-Day

Not available on Saturday.

FedEx Express Seventy-Six-Day

Not available on Saturday.

FedEx Express Seventy-Seven-Day

Not available on Saturday.

FedEx Express Seventy-Eight-Day

Not available on Saturday.

FedEx Express Seventy-Nine-Day

Not available on Saturday.

FedEx Express Eighty-Day

Not available on Saturday.

FedEx Express Eighty-One-Day

Not available on Saturday.

FedEx Express Eighty-Two-Day

Not available on Saturday.

FedEx Express Eighty-Three-Day

Not available on Saturday.

FedEx Express Eighty-Four-Day

Not available on Saturday.

FedEx Express Eighty-Five-Day

Not available on Saturday.

FedEx Express Eighty-Six-Day

Not available on Saturday.

FedEx Express Eighty-Seven-Day

Not available on Saturday.

FedEx Express Eighty-Eight-Day

Not available on Saturday.

FedEx Express Eighty-Nine-Day

Not available on Saturday.

FedEx Express Ninety-Day

Not available on Saturday.

FedEx Express Ninety-One-Day

Not available on Saturday.

FedEx Express Ninety-Two-Day

Not available on Saturday.

FedEx Express Ninety-Three-Day

Not available on Saturday.

FedEx Express Ninety-Four-Day

Not available on Saturday.

FedEx Express Ninety-Five-Day

Not available on Saturday.

FedEx Express Ninety-Six-Day

Not available on Saturday.

FedEx Express Ninety-Seven-Day

Not available on Saturday.

FedEx Express Ninety-Eight-Day

Not available on Saturday.

FedEx Express Ninety-Nine-Day

Not available on Saturday.

FedEx Express One Hundred-Day

Not available on Saturday.

FedEx Express One Hundred-One-Day

Not available on Saturday.

FedEx Express One Hundred-Two-Day

Not available on Saturday.

FedEx Express One Hundred-Three-Day

Not available on Saturday.

FedEx Express One Hundred-Four-Day

Not available on Saturday.

FedEx Express One Hundred-Five-Day

Not available on Saturday.

FedEx Express One Hundred-Six-Day

Not available on Saturday.

FedEx Express One Hundred-Seven-Day

Not available on Saturday.

FedEx Express One Hundred-Eight-Day

Not available on Saturday.

FedEx Express One Hundred-Nine-Day

GOODWIN | PROCTER

Patrice A. King
973-994-7896
pking@goodwinprocter.com

Goodwin Procter LLP
Counsellors at Law
103 Eisenhower Parkway
Roseland, NJ 07068
T: 973-992-1990
F: 973-992-4643

April 13, 2005

Via E-Mail and Federal Express

Joe Fusion
214 NE 29th Avenue
Portland, OR 97232

Re: U.S. Patent Application for ADVANCED VERSATILE LAYOUT AND
RENDERING SYSTEM
Application No.: US 04/10027

Dear Joe:

Pursuant to your conversation with Lewis, enclosed please find for your review and execution a "Declaration of Inventorship" and a "Patent Assignment" for the above identified patent case. Under the United States patent laws, each inventor must sign a statutory oath or declaration of inventorship attesting that they are the first and original inventors of the claimed inventions. The patent assignment will effectuate the transfer of your rights in the inventions to Planetii as set forth in your employment letter agreement with Planetii. For your convenience, I have also enclosed a copy of the published application for your review.

Please return a copy of the executed documents to our offices by e-mail or facsimile, and the original document by mail. If you have any questions, please do not hesitate to contact me.

Very truly yours,

Patrice King (YAP)

Patrice A. King, Esq.
PZK:yap
Enclosure

Exhibit C-3

FILE

King, Patrice A

From: King, Patrice A
Sent: Tuesday, May 17, 2005 6:16 PM
To: 'jfusion@monkey.org'
Cc: Barberi, Katherine
Subject: REMINDER - Planetii - US Patent Application

REMINDER!

-----Original Message-----

From: King, Patrice A
Sent: Tuesday, April 12, 2005 6:04 PM
To: 'jfusion@monkey.org'
Cc: 'Lewis Cheng'
Subject: Planetii - US Patent Application



WO2004090739A1.4405042_1.doc (92 Pli Assignment
pdf (1 MB) KB Rights-2.doc (2...

RETURN RECEIPT REQUESTED

Via E-Mail and Federal Express

US Patent Application for ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM
Appl. No.: US04/10027

Dear Joe:

Pursuant to your conversation with Lewis, attached please find for your review and execution a "Declaration of Inventorship" and a "Patent Assignment" for the above identified patent case. Under the United States patent laws, each inventor must sign a statutory oath or declaration of inventorship attesting that they are the first and original inventors of the claimed inventions. The patent assignment will effectuate the transfer of your rights in the invention to Planetii as set forth in your employment letter agreement with Planetii. For your convenience, I have also attached a copy of the published application for your review.

Please return a copy of the executed documents to our offices by e-mail or facsimile, and the original document by mail. If you have any questions, please do not hesitate to contact me.

Kindly acknowledge receipt of this e-mail.

Regards,

Patrice

Patrice Andrea King, Esq.
Associate Attorney
Goodwin Procter LLP
103 Eisenhower Parkway
Roseland, New Jersey 07068
Direct Dial: 973.994.7896

General: 973.992.1990

Fax: 973.992.4643

E-mail: pking@goodwinprocter.com

URL: www.goodwinprocter.com

Exhibit C-4

Barberi, Katherine

From: King, Patrice A
Sent: Monday, September 19, 2005 8:24 AM
To: 'jfusion@monkey.org'
Cc: Barberi, Katherine
Subject: FW: Planetii - US Patent Application - URGENT REMINDER

URGENT REMINDER - DUE OCTOBER 1, 2005

Please see below. Thank you.

-----Original Message-----

From: King, Patrice A
Sent: Tuesday, April 12, 2005 6:04 PM
To: 'jfusion@monkey.org'
Cc: 'Lewis Cheng'
Subject: Planetii - US Patent Application



WO2004090739A1.4405042_1.doc (95
pdf (1 MB) KB) Pii Assignment
Rights-2.doc (2...

RETURN RECEIPT REQUESTED

Via E-Mail and Federal Express

US Patent Application for ADVANCED VERSATILE LAYOUT AND RENDERING SYSTEM
Appl. No.: US04/10027

Dear Joe:

Pursuant to your conversation with Lewis, attached please find for your review and execution a "Declaration of Inventorship" and a "Patent Assignment" for the above identified patent case. Under the United States patent laws, each inventor must sign a statutory oath or declaration of inventorship attesting that they are the first and original inventors of the claimed inventions. The patent assignment will effectuate the transfer of your rights in the invention to Planetii as set forth in your employment letter agreement with Planetii. For your convenience, I have also attached a copy of the published application for your review.

Please return a copy of the executed documents to our offices by e-mail or facsimile, and the original document by mail. If you have any questions, please do not hesitate to contact me.

Kindly acknowledge receipt of this e-mail.

Regards,

Patrice

Patrice Andrea King, Esq.
Associate Attorney
Goodwin Procter LLP
103 Eisenhower Parkway
Roseland, New Jersey 07068

Direct Dial: 973.994.7896

General: 973.992.1990

Fax: 973.992.4643

E-mail: pking@goodwinprocter.com

URL: www.goodwinprocter.com

Exhibit C-5



<i>ship date</i>	<i>from</i>	<i>vendor</i>
Thu, Sep 15	Patrice King (07023)	FedEx
<i>to</i>	Goodwin Procter LLP	<i>tracking number</i>
Joe Fusion	103 Eisenhower Parkway	790154576936
214 NE 29th Ave	Roseland, NJ 07068 US	<i>service</i>
Portland, OR 97232-3204 US	9739947896	FedEx Standard Overnight
408-260-7930	<i>billing</i>	<i>packaging</i>
<i>residential address</i>	Planetii USA Inc./General Patent	FedEx Envelope
Yes	and Trademark	<i>options</i>
<i>return label</i>	(102907/113712)	None
No	Documents	<i>courtesy quote</i>
	<i>operator</i>	14.12
	Yvette Alvarez-Perez	<i>The courtesy quote does not reflect</i>
	973-422-7907	<i>fuel surcharge and does not</i>
	yperez@goodwinprocter.com	<i>necessarily reflect all accessorial</i>
	<i>create time</i>	<i>charges.</i>
	09/15/05, 3:24PM	

Legal Terms and Conditions

Tendering packages by using this system constitutes your agreement to the service conditions for the transportation of your shipments as found in the applicable FedEx Service Guide, available upon request. FedEx will not be responsible for any claim in excess of the applicable declared value, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the applicable FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of 100 USD or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is 500 USD, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see applicable FedEx Service Guide. FedEx will not be liable for loss or damage to prohibited items in any event or for your acts or omissions, including, without limitation, improper or insufficient packaging, securing, marking or addressing, or the acts or omissions of the recipient or anyone else with an interest in the package. See the applicable FedEx Service Guide for complete terms and conditions. To obtain information regarding how to file a claim or to obtain a Service Guide, please call 1-800-GO-FEDEX (1-800-463-3339).

©2003-2005 Lynch Marks LLC. All rights reserved. PS|Ship™ is a trademark of Lynch Marks LLC. Other product and company names listed are trademarks or trade names of their respective companies.

Track Shipments
Detailed Results [Quick Help](#)

Tracking number	790154576936	Reference	102907.113712
Signed for by	M.RIA179195	Destination	PORTLAND, OR
Ship date	Sep 15, 2005	Service type	Standard Overnight
Delivery date	Sep 19, 2005 1:18 PM		

Status	Delivered
--------	-----------

Date/Time	Activity	Location	Details
Sep 19, 2005	1:18 PM Delivered	PORLAND, OR	Package delivered to recipient address - release authorized

[Signature proof](#)[Track more shipments](#)

E-mail your detailed tracking results (optional)

Enter your name and e-mail address, submit up to three e-mail addresses, add your message (optional), and click **Submit**. If you include a message, you must enter your name and e-mail address in the fields provided.

[Add personal message:](#)**Your Name:****Your E-mail Address:****To E-mail Address(es):**

Not available for non-English characters

By selecting this check box and the Submit button, I agree to these [Terms and Conditions](#)

[Submit](#)

Exhibit D

ASSIGNMENT OF RIGHTS: PATENT APPLICATION

WHEREAS, WE, Lewis Cheng, a citizen of Canada, and Joseph Fusion and Kyung Lee, each citizens of the United States, as **ASSIGNORS**, residing respectively at: 2400 W. El Camino Real, #715, Mountain View, CA 94040; 214 NE 29th Ave., Portland, OR 97232; and 1275 15th St. #6R, Fort Lee, NJ 07024; are the inventors of the invention entitled, **Advanced Versatile Layout and Rendering System**, for which an application for a United States Patent was filed on April 1, 2003, Serial no. 60/459329, and for which a PCT application was filed on April 1, 2004, Serial No. PCT/US04/10027 and;

WHEREAS, Planetii USA, Inc., doing business at 2400 W. El Camino Real #715, Mountain View, CA 94040, **ASSIGNEE** is desirous of obtaining the entire right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said **ASSIGNORS**, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said **ASSIGNEE**, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND WE HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said **ASSIGNEE**, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree that we have full right to convey the entire interest herein assigned, and that we have not executed, or will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to the said **ASSIGNEE**, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said **ASSIGNEE**, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

IN TESTIMONY WHEREOF, We hereunto set our hands and seals the day and year set opposite our respective signatures.

Date: 4/28/05


Lewis Cheng

Date: _____

Joseph Fusion

Date: _____

Kyung Lee

ASSIGNMENT OF RIGHTS: PATENT APPLICATION

WHEREAS, WE, Lewis Cheng, a citizen of Canada, and Joseph Fusion and Kyung Lee, each citizens of the United States, as **ASSIGNORS**, residing respectively at

2400 W. El Camino Real, #715, Mountain View, CA 94040,

1322 The Alameda #358, San Jose, CA 95126,

are the inventors of the invention entitled, **Advanced Versatile Layout and Rendering System**, for which an application for a United States Patent was filed on April 1, 2003, Serial no. 60/459329, and for which a PCT application was filed on April 1, 2004, Serial no. PCT/US04/10027 and,

WHEREAS, Planetii USA, Inc., doing business at 560 S. Winchester Blvd., Suite 305, San Jose, California 95128, **ASSIGNEE** is desirous of obtaining the entire right, title and interest in, to and under the said invention and the said application:

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, and other good and valuable consideration, the receipt of which is hereby acknowledged, we, the said **ASSIGNORS**, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said **ASSIGNEE**, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may hereafter be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND WE HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said **ASSIGNEE**, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree that we have full right to convey the entire interest herein assigned, and that we have not executed, or will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to the said **ASSIGNEE**, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said **ASSIGNEE**, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

IN TESTIMONY WHEREOF, We hereunto set our hands and seals the day and year set opposite our respective signatures.

Date:

Lewis Cheng

On this _____ day of _____, before me personally appeared the Assignor _____, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument, and acknowledged to me that she executed the same.

WITNESS my hand and official seal in _____ County of _____ on the date set forth in this certificate.

Notary Public

Date:

Joseph Fusion

On this 11 day of November, before me personally appeared the Assignor -
Kyung Lee, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person
whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal in Santa Clara County of Santa Clara on the date set
forth in this certificate.

Notary Public

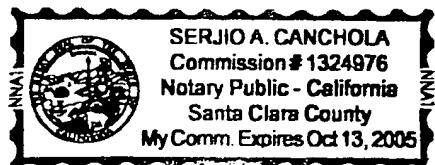
Date: 11/11/2014

Kyung Lee

Kyung Lee On this 11 day of November, before me personally appeared the Assignor -
Kyung Lee, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person
whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

WITNESS my hand and official seal in Santa Clara County of Santa Clara on the date set
forth in this certificate.

Kyung Lee
Notary Public



September 7, 2001



Joe Fusion
655 5th Avenue
Brooklyn, New York

Dear Joe:

We are pleased to offer you a position at PLANETii USA Inc. ("PLANETii") as Multimedia Developer beginning on September 10, 2001, under the terms and conditions set forth below. You will report directly to Shun C. Chu. As Multimedia Developer, you will be compensated at a rate of US\$3,750 monthly (US\$45,000 pro-rated annually) in accordance with PLANETii's standard payroll practices. All amounts payable to you shall be reduced by standard withholdings and other authorized deductions.

Upon PLANETii's next round of official funding, your rate of compensation will increase up to US\$4,584 monthly (US\$55,000 pro-rated annually) in accordance with PLANETii's standard payroll practices. The exact amount of increase will be decided by the management of PLANETii and will depend on your overall performance.

Your first performance review will be on December 10, 2001. PLANETii may issue you a formal grant of stock options on December 10, 2001, pursuant to the terms of the plan and applicable standard agreement developed by PLANETii. The terms of stock options granted to you will also be decided by the management of PLANETii and will also depend on your overall performance.

You are also eligible for PLANETii's health and dental insurance coverage after the 3rd month of employment. If you choose to enroll, PLANETii pays 50% of the associated costs of your health and dental plan. Please do not hesitate to ask us for more details about our particular plan details.

As an employee of PLANETii, you understand that, in its business, PLANETii has developed and will use commercially valuable technical and non-technical information that is vital to the success of PLANETii's business. You understand that it is necessary for PLANETii to protect such information as confidential and proprietary ("Confidential and Proprietary Information"). Such Confidential and Proprietary Information shall include: (a) research and development work; source code; object code; run-time libraries; system documentation; software-related documentation; system configurations; hardware design; firmware design; layout; and operation of PLANETii's facilities and equipment; all of these items for both customers/clients and for PLANETii's internal operations; (b) contents of proposals/contracts with all former, existing, and prospective customers/clients; costing and estimation procedures and formulae regarding proposals and other uses; sales, profit and loss, profit margin, production costs, overhead, and other bookkeeping and accounting information; all information regarding business development and marketing; names of vendors and suppliers not well known to the trade; all contacts at all such vendors and suppliers whether or not such vendors and suppliers are well known to the trade; costs and contents of proposals and contracts with such vendors and supplies; and (c) confidential information revealed to PLANETii by third parties and which PLANETii is obligated to keep confidential; all copies of this agreement, and any other information that may be considered by PLANETii as PLANETii's confidential information under applicable laws. Confidential and Proprietary Information shall not include information which is, or becomes, in the public domain, unless this occurs through a breach of any of the obligations hereunder; information in your possession from a third party source that is not in breach of any obligation owed to PLANETii; or information required to be disclosed by law.

You agree to hold in confidence all Confidential and Proprietary Information disclosed to you or developed by you in connection with your employment by PLANETii, either in writing, verbally, or as a result of your employment. You shall not, without permission of PLANETii, use or duplicate Confidential and Proprietary Information that you are obligated hereunder to maintain in confidence for any reason other than to enable you to properly and completely perform your job. You shall immediately notify PLANETii of any information that comes to your attention that does or might indicate that there has been any loss of confidentiality of such Confidential and Proprietary Information. Upon termination of employment for any



reason whatsoever, or upon PLANETii's request, you shall promptly return all correspondence, drawings, blue prints, manuals, letters, notes, notebooks, reports, flowcharts, programs, proposals, documents concerning PLANETii's customers/clients and vendors/suppliers, documents concerning products or processes used by PLANETii, and all other documents, writing, and materials utilized by you, together with any copies or other reproductions made in any medium thereof made by you or in your possession or control. You understand that all such records, whether developed by you or others, are and shall remain the property of PLANETii.

Additionally, all files, input and output materials, the media upon which they are located (including cards, tapes, discs and other storage facilities), software programs or packages (together with any related documentation, and any related materials), database information and other materials which are designed, written or developed in the course of your employment, or any such materials designed, written or developed for or delivered to PLANETii, or designed, written or developed with the use of PLANETii property or personnel, and which may or may not be either confidential or proprietary (collectively, the "PLANETii Materials") shall, as between you and PLANETii, be the sole and exclusive property of PLANETii.

You agree that PLANETii Materials shall be a "work made for hire" (as defined in the Copyright Act of 1976), and that PLANETii shall be considered the author of PLANETii Materials for all purposes and the owner of all the rights comprised in the undivided copyright (and all renewals and extensions thereof) in and to PLANETii Materials and of any and all other rights in PLANETii Materials including patents, trade secret rights, trademarks and other proprietary rights.

In the event that PLANETii Materials are determined not to be a work made for hire and/or there are any rights which do not accrue to PLANETii under this Section, the Agreement shall operate as an irrevocable grant, transfer, sale and assignment to PLANETii of all right, title and interest, including all undivided copyrights (and renewals and extensions thereof) patents, trade secret rights, trademarks and other proprietary rights, in and to PLANETii Materials throughout the universe in all languages and in all media and forms of expressions and communication now known or later developed. The foregoing shall be effective as to each item created by you under this Agreement as of the moment such item is fixed in a tangible medium whether or not such item is complete. Accordingly, PLANETii shall own all works in progress. You shall have no rights of any kind in PLANETii Materials. No rights are reserved to you. You shall execute any and all documents required to effectuate this assignment as PLANETii may reasonably request from time to time.

Further, you shall not, during your employment and for a period of one year following the separation of your employment for any reason, directly or indirectly, influence, solicit or canvass, or attempt to influence, solicit or canvass (a) any customer/vendor of PLANETii to divert their business to any person or entity then in competition with PLANETii (i.e., web mathematics tutorial products/services), or otherwise attempt induce any customers to terminate their relationship with PLANETii, or (b) any employee of PLANETii to work for any individual or entity then in competition with the business of PLANETii, or otherwise to terminate his or her relationship with PLANETii.

You recognize and agree that your employment relationship with PLANETii will be "at-will" for all purposes, which means that either you or PLANETii may terminate your employment at any time for any reason. You recognize and agree that this offer of employment is not intended to be and should not be construed to be a contract of employment for any specified duration. Further, PLANETii reserves the right at any time to transfer or second your employment to other companies within PLANETii's group of companies to perform any other reasonable duties (either in addition to or in substitution for your then existing duties). You agree to devote your working time to PLANETii and not engage in other employment unless granted by prior written permission by your manager.

You understand that you have no authority either express or implied, to act or represent that you are acting on behalf of PLANETii, except in those instances in which PLANETii has given you prior written consent that specifically covers your acts or representations. You may not receive any income or material gain from any individuals or entities outside PLANETii for materials produced or service rendered while employed by PLANETii without the prior consent of the President or the Chief Executive Officer of PLANETii.



By accepting this offer, you affirm that you have the full right and authority to accept this offer and to perform any services required of you in your position as Multimedia Developer, and that by accepting this offer and performing such services you are not breaching any contract or legal obligation you owe to any third party. You acknowledge and understand that your employment is contingent upon verification of your identity and your ability to work for PLANETii and receive compensation for such work.

You acknowledge that PLANETii will be irreparably harmed if your obligations hereunder are not specifically enforced and that PLANETii would not have an adequate remedy at law in the event of an actual or threatened violation by you of your obligations hereunder. Therefore, you agree and consent that PLANETii shall be entitled to an injunction or any appropriate decree of specific performance of any actual or threatened violation or breaches by you or your agent, without the posting of any bond, and such other relief as may be just and proper, including the right to recover all losses or damages suffered by PLANETii resulting from any such breach or threatened breach. You further agree that, in such event, you shall reimburse PLANETii for its attorneys' fees and costs. In the event PLANETii applies to seal any papers produced or files in any judicial proceedings to preserve confidentiality, then you specifically agree not to oppose such application. You consent to the exclusive jurisdiction of the federal and state sitting in the State of New York for all such purposed, and waive any claims you may have that jurisdiction is not proper or such venue is not convenient. The parties hereto further consent that any summons and complaint or notice may be served by certified mail, return receipt requested at the address set forth above.

This offer supersedes and replaces any and all prior offers, agreements, statements, and representations made, whether written or oral, including statements and representations made in any advertisement or in the course of any job interviews, discussions, or negotiations for this position. This offer cannot be amended or otherwise modified and no breach or term of this offer letter may be waived except by a writing signed by a duly authorized officer of PLANETii. This agreement shall be construed and enforced according to the laws of the State of New York applying to contracts that are wholly performed within New York, without regard to principles of conflicts of law.

Joe, we look forward to having you become a member of the PLANETii team and hope you will find this position to be a rewarding career opportunity. With your background and experience, we think you will be an excellent fit for this position as well as a great asset to our company. If you require any additional information, please call me at (718) 625-8542.

Sincerely,

A handwritten signature in black ink, appearing to read "Shun C. Chu".

Shun C. Chu
Chief Technology Officer

Please sign and return one copy of this letter to indicate your acceptance of the terms of this offer letter and retain one copy for your records.

Offer Accepted:

A handwritten signature in black ink, appearing to read "Joe Fusion".

Joe Fusion

9.10.2001
Date